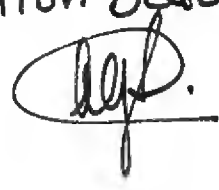


BC 48-1 - BC 48-3

COL. LEE O. MILES
COLLECTION

Collection and Notebooks (Field
Notes) received April 1963
from Dr. Joel W. Hedgpeth, Director,
Pacific Marine Sta., Dillon Beach



Collection '48 - 1 *

ENSENADA, B.C.
La Playita

March 22nd, 1948.

Taken on rocks of point just north of La Playita, about
two miles north of Ensenada.

Collected:

Thais emarginata,
Star Fish - *Pisaster giganteus capitatus*.
Acanthina scabra, Nuttall.
Octopus bimaculatus, 24" across.

Cuttle Fish, 1' long.

Eel, 30" long.

Crayfish, 8" long; juvenile. *Panulirus interruptus*.

Collection '48 - 2

ENSENADA, B.C.
La Playita

March 23rd, 1948.

Taken on same point as above, but further out as well.

Collected: *Acanthina lugubris*, Big
Norriësia norrisii; green at umbilicus.

Wavy Top Shell; *Astraea undosa*, Wood.

Tegula. *J. gallina*, Ho's

Collector,

Lee O. Miles

~~* Series "EN" on labels (copy)~~

* For Series "EN" on labels, see pp. 31-39.

Collection '48 - 3

ENSENADA , B.C.
La Playita

March 24th, 1948.

Taken on rocky point at La Playita, several miles north of ENSENADA, same as 2 previous collections, but continuing further north to more exposed (to open sea) beach; still rocky, but with much washing loose fine sand.

Collected :

- Mussels*
- Haliotis fulgens
- Urosalpinx pulex, Nuttallii*
- H. cracherodii

Same as before.

Collection '48 - 4

ENSENADA, B.C.
South sand beach.

March 25th, 1948.

Taken on bay beach of clean fine sand, open to swells from SSW and West, wide and hard packed.

Collected:

- Wedgies
- Pismo, small only. Tivela stultorum.
- Cup and Saucer Limpets ; Crucibulum *sp. spinosum*
- Pecten valves
- Cockles,

Shells, washed ashore fr. offshore rocks -

- Crepidula onyx*
- Urosalpinx pulex* ?
- Mussel - bearded - 1"
- Ligula*
- Acanthina ligularis*

Collector,
Lee O. Miles

BC 49-1

- BC 49-7

Collection '49 - 1

ENSENADA, B.C.
San Quentin -
Laguna Santa Maria.

April 5th, 1949.

Taken on wide, hard sandy beach, clean, exposed to open sea.

Duxia californica with crab.
 Collected: *Crepidula perforans*, Valer.
 Pismo Clams - *Tivela stultorum*; many washed ashore.
 • *Turritella cooperi*, Corp.
 Mussels - shell long, clean.
Macoma inchoata, Corp.
 Mussels, - shell long, bearded.
Nassarius fossata, Gould.
 Triton? - alive; orange with black stripes on body.
Aomaea conus, Juss.
 Barnacles, red; *Balanus concavus pacificus*, Pilsbry.
Turritella cooperi, Corp.
 Also 2 ducks; should have had 6.

6 6 6 6 6 6 6 6 6 6

Collection '49 - 2

ENSENADA, B.C.
La Playita, N.

April 6th, 1949.

Taken on rocky beach north of La Playita, several miles north of ENSENADA; open to sea.

Collected: *Mytilus adamsianus* - Flat mussel, compressed.
 Tegula
Pseudochama etozya, Conrad.
 Littorines
Pseudonidoloma
 Anas sp.
 Lottia gigantea.
 Volcanoe Kevhole Litteret.
 Brittle stars, 3 species.
 Leather Star.
 Chitons, various.
 Thais sp.

Chama pellucida, Sbr.Collector,
Lee G. Miles

Collection 149 - 3
A & B.

WISSENDA, B.C.
San Quentin Mole.

April 8th, 1949.

A. Taken on sandy clam flats under and on the old pier at the old English Colony.

Collected:

On flats: *In mud, 3' - Cerithidea californica, Hold.*
Pismo clams, a few; *Tivela stultorum.*

Macron kelletii, ^{*lividus?*} Adams. With much Algal growth on them: *M. lividus*, ^{*Adams*}

On steel piers of steel rails;

Mussels
Ostrea lurida lepicaudata, Arg.
Sponges, especially an orange-yellow.

B. At old mill, on rough lava:

Barnacles, large red - *Balanus concavus pacificus, Pils.*

Chitons, several.

Crucibulum sp. *C. spinosum*

• *Acmaea limatula*, File Limpet. *Cargenter*

Oysters.

Collector,

Leo C. Miles

Collection '49 - '4

ENSEMADA, B.C.
Laguna Santa Maria, S.

April 9th, 1949. * 10th

Collected along sandy to cobbled beach from LAGUNA SANTA MARIA south as far as wide beach extends.

Collected:

Clivella on sand bar exposed at low tide.

Small spiral purple shells. *Macron lividus*, A Adams
~~*Nassarius fossatus*, Gould.~~

~~Nassarius?~~ *Cerastoma gemmatum*, Carp.

~~*Buccina californica*, Hinds.~~

Ostrea lurida lapicincta, Carpenter
Hermit crabs in various kinds of shells.

Pismo clams near surface, breaking it. *Tivela stultorum*.

Sand dollars, with red barnacles. These in tide pool back of sand bar exposed at low tide, buried flat to upright, moving from 6" to 10".

Donax?, a few.

Glass with concentric lines; thin, large.

Venerupis sp.

Washed *Crepidula* sp.

Crabs, buried in sand. Near 0.0' tide mark.

Collector,

Lee O. Miles

Collection '49 - 5.

ENSENADA, B.C.
La Playita, N.

April 11th, 1949.

Collected on rocks and bedrock near cliffs near Point Light north of La Playita, several miles north of Ensenada. In Zones 1, 2 and 3. Surf and tide kept me out of Zone 4 until I fell in trying to get some barnacles.

Collected: *Pteroporus* (name) *trialis*, Sbs
Purpura (*Pteroporus*) *nuttallii*, Conrad.

Heliotis cracherodii, Lisch

408 - Littorines. *Pseudomelastoma penicillata*

406 - *Fittorina planaxis*, Phil.

Thais emarginata.

Musculus levidus, Adams

Chitons, various species.

Lottia gigantea, Owl Limpet.

Acmaea limatula, File Limpet.

Ostrea lurida, Carp.

407 *Comus californicus*, Hines

Ocenebra parsoni, Carp.

Purpura monocerum, Sbs

404 - *P. (Pteroporus) nuttallii*, Conrad.

Collector,

Lee O. Miles.

Collection '49 - 6

ENSENADA, B.C.
San Ysidro - Pt Cabras.

April 14th, 1949.

Followed the main highway, paved, south from Ensenada to San Vicente; then turned west and followed a dirt "road" down San Ysidro River to the coast, crossing and recrossing the stream and irrigation ditches many times. The canyon widens near San Ysidro and the coast, and the road mounts to the coastal bench. Turn north past Punta San Ysidro with its blow-hole, to the cove inside (South) Punta Cabras. The rocky points north of San Ysidro are volcanic.

Collected : Zones 1, 2 and upper 3.

Haliotis cracherodii, plentiful - Leach.

Lottia gigantea, huge specimens.

Acmaea limatula, File Limpet.

Thais emarginata?, large. *Pezomachus*.

Acanthina lugubris, sb.

Tegula brunnea

T. funebris

Tegula, white & brown markings.

Strongylocentrotus purpurea. Sea Urchin.

Mytilus sp.

Pisaster ochraceus.

Pisaster giganteus capitatus.

Note; saw no *Haliotis fulgens*, but saw many shells at fishermen's huts in village at mouth of San Ysidro.

Collector,

Lee O. Miles

Collection '49 - 7

ENSENADA, B.C.
San Ysidro, South.

April 15th, 1949.

To San Vicente, then west down the canyon of the Rio San Ysidro to near its mouth, where the road mounts north to the coastal plain, and a branch dirt road crosses the sandy arroyo to the coastal plain south of the river. Proceeded south on this road about two miles to a dry arroyo; walked down this arroyo to the beach. Nearly horizontal strata form the upper beach, dipping toward the sea, and much broken and undercut. The coastal plain is not over 25' above high tide mark. Below the rock upper beach, in places are small areas of clean sand.

Collected:

Zone 1 :
409 Littorines. *L. planaxis*, Phillipii

Zone 2 :
Turbans
Thais - *T. emarginata*, Reuch.

Zone 3, upper edge :
Lottia gigantea
Volcanoe keyhole limpet
Megathura crenulata, Shy. Large Keyhole limpet
Haliotis fulgens, Phillipii
H. cracherodii - Reuch. - - - - -

Collection '49 - 8

ENSENADA, B.C.
La Playita, N.

April 18th, 1949.

Taken at rocky point just north of La Playita, described in other collections.

Taken: *Furcraea volcanae*, Reuch
Black Keyhole Limpet. *Megathura crenulata*, Shy

Haliotis fulgens, small.

Haliotis cracherodii.

Astraea?

Nonisio nonisii, Shy

Collector.

Lee O. Miles

BC 1 - 50 ((1950)) - BC 13-50

Collection BC 1 - 50

LA PLAYITA, B.C.

April 3rd, 1950.

Collected at LA PLAYITA, a small beach several miles north of ENSENADA, BAJA CALIFORNIA; gravel to large boulders, roughly worn, without much fine sand. Collected in Zones 1, 2 & 3.

Collections include:

Hoppers		
Clam, juvenile?		
Keyhole Limpet, brown rayed on white.		
Lamp shells	.....	Specimen # 121
Shrimp	.....	" 143
Coral ?	.....	" 144
Chiton, large, blonde	.....	" 148
Chiton	.....	" 149
Chiton		" 150
Chiton		" 151 ✓ =
Chiton (Mopalia?)		" 152
Chiton ; small, reddish		" 153

Collector,

Lee O. Miles

Collection BC 2 - 50

SAN YSIDRO POINT
B.C.

April 4th, 1950.

Near the fishing village of SAN YSIDRO, BAJA CALIFORNIA, north 0.5 miles from the Point north of the mouth of SAN YSIDRO CREEK. Among and on boulders on the rock beach, some large gravel and little sand. In Zones 1, 2 and upper 3.

Collections include:

Keyhole Limpet, mantle covering most of it.
Rock Oyster, so-called. Worm.
Worm tubes with worms, attached to above.
Sipunculids with above.

Gastropod, medium, banded, toothed like Acanthina.	Specimen # 113
Littorina scutulata?	Specimen # 114
Amphissa	" 122
Keyhole Limpet, rayed	" 123
Compound Ascidea?	" 138
Shrimp	See BC 1 " 143
Chiton	" 158
Chiton	" 159
Chiton	" 160
Chiton	" 161

Collector

Lee O. Miles

Collection BC 3 - 50.

GOMEZ BEACH
B.C.

April 6th, 1950

Collected at GOMEZ BEACH, on a low reef down the valley west from Gomez Store and Hamilton Ranch at COLONIA VINCENT GUERRARO, BAJA CALIFORNIA. This reef is covered with loose boulders averaging about 12 to 20 inches in diameter, well-rounded, and with much sand. Zones 1, 2 & 3.

Collections include:

- Conus shell
- Isopod
- Crab, black-tipped claws.
- Acmaea paleacea on Eel Grass.
- Shrimp

Octopus	Specimen #	111
Worms, dark green, in rocky tubes	"	131
Worm and tube	"	136
Crab	"	137
Isopod	"	139
Hoppers	"	140
White "bugs"	"	146

Collector,

Lee O.Miles

Collection BC 4 - 50

SAN QUENTIN BAY,
B.C.

April 7th, 1950.

Collected on the muddy sand flats at the old mole, on
SAN QUENTIN BAY, BAJA CALIFORNIA. Zones 1, 2 & 3.

Collections include.:

- Crab, hairy Specimen # 109
- Snails, channeled, mud flat. " 117
- Cerithidium-like, small " 118
- Sponge, heavy mat " 125
- Sponge, erect " 126
- Shrimp, mud. Callianassa ? " 127
- Corymorpha ? " 130
- Chiton " 162
- Chiton " 163
- Chiton " 164 ✓ =
- Chiton " 167 ✓ = lepidozona cf Californensis
Bony

- Actaeon punctocoelata
- Cerithidea calif.
- Sea Anemone, tiny

Collector,

Lee O.Miles

Collection BC 5 - 1950

LA PLAYITA,
B.C.

April 8th, 1950

Collected on rocky beach north 2.0 miles from LA PLAYITA, which itself is several miles north of ENSENADA, BAJA CALIFORNIA. Collected in Zones 1, 2 & 3, among and on boulders on solid rock, with little sand. Not lava.

Collections include :

Octopus	Specimen #	110
Gastropod, murex type	"	112
Gastropod, small white, murex type.	"	115
Macron	"	116
Worm	"	133
Comp. Ascidea?	"	134
Nudibranch (like Hermissenda)	"	135
Pisaster giganteus capitatus	"	147

Rock Oyster
 Nudibranch
 Acmaea
 Starfish other than above.

Collector,

Lee O.Miles

Collection BC 6 - 50

LA PLAYITA, B.C.

Aprl 10th, 1950.

Collected 2.5 miles north of LA PLAYITA, which is several miles north of ENSENADA, BAJA CALIFORNIA; on and under loose boulders on a reef, with little sand.

Collections include:

Nudibranch - like Hermissenda	Specimen #	101
Nudibranch - brown	"	102
Crab, heavy claws	"	103
Nudibranch, white	"	104
Ascideae	"	105
Kelp Crab	"	106
Hydroid on kelp	"	107
Shrimp	"	108
Sponge	"	132
Chiton	"	168
Chiton	"	169
Chiton	"	170

Thais emarginata DESCHAYES

- Octopus, juvenile
- Cling Fish
- Crab, black tipped claws
- Mitella
- Crab -- like Mimulus
- Crab, hairy

Collector

Lee O.Miles

Collection BC 7 - 50

LA PLAYITA, B.C.

April 11th, 1950

Collected on and under loose boulders and in rock crevices on rocky shore 1.0 miles north of LA PLAYITA, near ocean beacon, about 3.0 miles from ENSENADA, BAJA CALIFORNIA.

Collections include:

- Gastropod, turret type. Specimen # 119
- Gastropod, small, sculptured " 120
- Brittle star, arms bristled " 175
- Brittle star, banded, " " 176
- Brittle star, large, bands, brown. 177
- Brittle star, small brown, smooth 178

Norrisia norrisii

Astraea

Pea clam (like wheat kernel).

Crab, long snout.

Worn gastropod (Murex gemma?)

Collected by

Lee O.Miles

Collection BC 8 - 50

SAN YSIDRO POINT
B.C..

April 12th, 1950

Collected 1.0 miles north of SAN YSIDRO POINT, which is at the mouth of SAN YSIDRO CREEK, west of SAN VICENTE, BAJA CALIFORNIA. In zones 1,2 & 3, amongst boulders on rocky and much worn shore, with considerable fine sand.

Collections include:

Keyhole Limpet. See also BC 2.	Specimen #	123
Sponge	"	124
Hydroid	"	129
Hydroid	"	141
Caprellid	"	142
Shrimp	"	145
Chiton	"	171
Chiton	"	172
Chiton	"	173

Conus - worn
Pecten - juvenile
Isopod

Collected by

Lee O.Miles

Collection BC 9 - 50

CAMP CAMALU, BC

Collected April 14th, 1950

On a rocky beach in Zones 1 and 2, at the mouth of a large arroyo about 1.0 mile north of the old army camp in CAMALU ARROYO, which is 15 miles north of GOMEZ STORE at COLONIA V, GUERRARO. Loose rounded boulders lie on nearly horizontal strata of sandstone and limestone, with some fine sand and gravel.

Collections include:

Chiton	Specimen 165
Chiton	" 166
Keyhole limpet, rayed.	
Crepidula onyx	

Crawfish remains plentiful along this beach. It would be an interesting beach to collect on if tides were favorable.

Collected by
Lee O. Miles

Collection BC 10 - 50

LAGUNA SANTA MARIA
B.C.

April 15th, 1950

Collected on the flat sand beach opposite and south of
LAGUNA SANTA MARIA, which lies several miles south of
SAN QUENTIN BAY. A beach of the Salmon Creek or Oceano
type; but at its southern end, becoming gravelly.

Collections include:
Shells only.

- Crepidula onyx
- Macoma sp.
- Haliotis fulgens
- H. cracherodii
- Tivela stultorum

Collections ~~XXXXXXXX~~by

Lee O.Miles

Collection BC 11 - 50

PORTO SANTO TOMAS
B.C.

April 16th, 1950

Collections made south of the village at the mouth of
RIO SANTO TOMAS, on and among the rocks and boulders
of a badly eroded headland of conglomerate.
In Zones 1 and 2 only.

Collections include:

Chiton, large	Specimen # 154	
Chiton	" 155	
Chiton	" 156 ✓	= <u>Nuttallina fluxa</u> (Cpr.), l.
Chiton	" 157	
Chiton	" 174	

~~Tegula~~ Tegula
Norrisii
Kelp Crab

Collector

Lee O. Miles

Collection BC - 12 - 50

CAMALU BEACH
B.C.

April 17th, 1950

Collected on conglomerate boulders lying on nearly horizontal strata at the foot of cliffs, at a point about 0.5 miles north of the area collected on Collection BC 9; about 1.5 miles north of the old army camp in ARROYO CAMALU, 15 miles north of COLONIA V, GUERRERO, HAMILTON RANCH.

Collections include:

- In Zones 1 & 2 only.
- Tegula gallina*, Forbes
- Chitons
- Clams, small white.
- Crab, small, snouted.
- Crayfish, washed ashore.

Flat worms

Specimen # 128

Collector

Lee O.Miles

Collection BC 13 - 50

OCEANO BEACH
Calif.

April 22nd, 1950

Collected on the nearly flat sandy beach, well-packed, south
of the PISMO BEACH on OCEANO BEACH, CALIFORNIA.

Collections include:

Tivela stultorum ; many of these lying on wet sand, were
observed to right themselves and bury in the sand.

Sand crab

Jack-knife clam

Collector

Lee O.Miles

BC 14 - BC 23

1951 - 1951 (April)

Collection BC 14

Ensenada, B.C.
La Playita.

April 14th, 1951

8.00 AM - 11.00 AM

Low tide at 10.30 AM - 0.6' No surf.

North of Light on point about 1 mile north of LA PLAYITA, which lies about 2.5 miles north of ENSENADA, on main Highway. On open Pacific coast, on boulders on base rocks, mostly lava, with much washing sand from sand beaches in coves on both sides of this point.
In Zones 2 & 3.

Collections include: *Acenebra goulsonii*, Carpenter

Tegula gallina

Pugilid; male and female, mating. Male bright red, female dark brown.

Patiria, small specimen.

Chama pellucida, Broderip

Pisaster with large spots, short heavy 5 arms.

Pseudobornia etoyon, Conrad

Star fish with 5 long limber arms, dark red to brown.

Haliotis fulgens, blue abalone; small specimen. Philippi

Haliotis cracherodii, black abalone; small specimen. Leach

(*Burpura*) *Pteroplys rutillicia*, Conrad
~~subex.~~

~~Actaea~~ small specimen *A. undosa*, ~~Woods~~

Chitons

"

Lantern shell, small.

Brittle Stars

"

"

Sponge, yellow, changed to purple in 95% Iso-propyl.

ALGAE.

Collector.

Lee O. Miles

Collection BC 15

ENSENADA, B.C.
Santo Thomas

April 15th, 1951.

10.00 AM - 12.30 PM

Low tide at 11.15 AM. 0.3' No surf.

Below switchbacks on highway entering SANTA TOMAS Valley from ENSENADA, west down SANTA TOMAS River to coast to village of fishermen north of mouth of river; thence north around a headland about 1/2 mile to a camp spot at cliff top. On open Pacific coast, on solid rock overlain in spots by sand and boulders. Zones 2 & 3.

Collections include: *Chlamys* 9/4 *C. hastatus*, Sbj. Juvenile
Ocenebra

Haliotis cracherodii; many small to medium size. Leach

Haliotis fulgens; not plentiful.

Thais emarginata

Zonaria spadicea, Chesnut Courie. Z. 3, near boulders. Swinson

Gastropod, Nuxem like, spine.

Tegula funicularis, small specimen

Sea Anemone.

Brittle Stars, feathery arms, large.

Patiria, large.

Cucumaria, yellow

Didibranch, small, plain yellow (David)

Mulibranch, red. (*Hopkinsia rosacea*)

Morrisia, small. *M. noronhai*, Sbj

Cyprea, small.

Mucron livida

Acmaea asmi, (blue)

Collector,

Lee C. Miles

Collection BC 16

ENSENADA, B.C.
San Ysidro

April 16th, 1951. 12.00 M to 3.30 PM

Low tide at 12.00 M. Little surf.

South from ENSENADA to SAN VICENTE, thence west down San Ysidro River, crossing and recrossing some many times, to coast; north from the small village north of the mouth of the stream for about 1 1/2 miles to a rocky point with a bird whitened islet; in the lee of this point in a small cove, in Zones 1, 2 & 3. An open abruptly rocky coast, here partially protected, on solid rock, of lava conglomerate and sandstone, in strata nearly horizontal; with much sand washing in;

"A" And further north beyond this point to a wide sandy beach open to the sea. Collected 4 miles north of SAN YSIDRO.

Collections include: From rocks of Point Cove: *Tegula funebris*
Acanthina lugubris, *Sb.*
~~*Thais lugubris*~~ *Petricola carolinensis*, . atypical.
~~*Littorina*~~ *Acanthina paucilirata*, *Stearns*
Lottia gigantea, Gray
Haliotis cracherodii, numerous, all sizes. Beach
Mytilus, many with -
Bryozoa on above
Compound Ascidea
Isopods
Volcanoe keyhole limpet. *Fimbrilia volcanae*, Rees
Crabs, small, big claws.
Micron lividus, *a. adams*

"A" From open sandy beach N. of Point.
Sand Crabs
Pismo clams
Donax
Sand Dollars, green, keyhole, circular
Cowrie shells.

Collector

Lee O. Miles

Collection BC 17

ENSENADA, B.C.
San Ysidro S.

April 17th, 1951

11.00 AM - 3.00 PM

Low Tide at 12.35 PM.

Moderate surf.

South from the mouth of SAN YSIDRO RIVER (See BB 16) for several miles to "FRIAR'S MINE", iron and lava; Open abrupt rocky coast; lava conglomerates and lava; deep water off much of the rocky points, with small sandy coves and narrow inlets, zones 1 & 2, then dropping abruptly to deep water. Strata nearly horizontal.

Collections include:

Worms, sandy tubes, on overhang of rock away from surf.

Acanthina lugubris, *St.* Laying eggs.

Thais *marginata* " "

Lottia gigantea *Gray* " "

Corralines, like Ming Tree.

" " leaf.

Rock Oyster

Goose barnacle

Collector

Lee O. Miles

Collection BC 18

Ensenada, B.C.
Colonia Guerrero

April 10th, 1951

11.00 AM - 2.30 PM

Low tide at 12.45 PM 0.0' Moderate surf

South on the main highway from ENSENADA, B.C., to COLONIA GUERRERO, Gomez Place and Hamilton Ranch; thence west down the valley of RIO SANTO DOMINGO to its mouth (apparently permanently closed by sand dunes, ending in a marshy lagoon) at SAN RAMON BAY.

Collected on boulder field of rounded boulders, with sand abundantly washed in . Boulders of assorted kinds, mostly hard and smooth, and loose; average diameter 12" - 18".

Collections include:

Rock Oysters

Isopods

Shrimp

Acanthina parviculata, Stearns
Tegula, striped. *J. gallina*, Forbes

Littorines; black

" green, end eroded.

Gastropods, striped.

Crepidula - *C. onyx*, Sowerby

C. adunca, Sowerby

Protothaca *staminea*, Conrad

Macoma livida, A. Adams

Patiria

} , or 2 other species

Chitons

"

"

Crab, heavy claw, black tip.

Worms, build boulder like mass of cases.

Acmaea on Eel Grass.

Collector

Lee O.Miles

Collection BC 19

ENSENADA, B.C.
San Quintin Bay.

April 19th, 1951. "A" 10.00 AM - 12.00 M "B" 12.30 PM - 23.0 PM

Low tide at 1.10 PM 0.2' Low surf.

South of ENSENADA on main highway, beyond Colonia V. Guerrero and Gomez Place to end of present grading of highway, then angling on dirt roads southwesterly to LAGOON SANTA MARIA.

"A" Beach at this point on both north and south, is a flat hard packed sandy beach, no boulders, backed by low blowing sand dunes. On main SANQUINTIN BAY.

"B" North to the old MUELLE (Mole) at ruins of old English colony, west of the end of present highway grade, on dirt road. Beach about the Mole is hard sand, with mud or silt overlaying it in some areas.

Collections include:

- "A" In Zone 1 and upper Z. 2, mostly near High tide mark:
Mussels, ~~Mytilus~~ *Mytilus Californianus*, Conrad.
Tivela stultorum; being harvested commercially now. *Mame*
Kellestia? *Kellestia Kellestii*, Forbes
Clam
Clam
Crepidula onyx, *Sowerby*
Balanus on Kellestia

- "B" In Zones 1, 2 and upper 3. On sand-mud flats.
Sponge, in clumps in mud.
Sponge, white top.
Gastropod, brown, deeply channeled. *Macraea Kellestii*, Adams
Crepidula on above. *C. onyx* *Sowerby*

- "C" On piles of old mole - steel rails.
Oysters
Sponge
Sponge
Bryozoa
Hydroids
Compound Ascidea.

Collector

Lee O. Miles

Collection BC 20

ENSENADA, B.C.
Santa Maria Lagoon.

April 20th, 1951.

Low tide at 1.40 PM; 0.4'.

South of ENSENADA on main highway past COLONIA V. GUERRERO and GOMEZ PLACE, past end of graded highway at entrance by dirt road to west to SAN QUINTIN BAY, to LAGUNA SANTA MARIA on main bay. Drove north 5 miles on flat sandy beach, well packed, to sandy point of not packed sand. Here this small sandy point encloses a cove to south, small; and a larger cove to north, this with deep mud banks and bottom.

Returned to Lagoon, then drove 8 miles southward. The flat and wide beach of packed sand gives way to a narrow belt of cobbles below steep alluvial cliffs. At 8 miles a point of loose boulders averaging better than 1.0' diameter, projects into the bay, and promises excellent collecting when the tide is right.

Collections were of dead shells only, at or near high tide mark.

At the sandy point north of the lagoon, many Tethys were left on shore near high tide mark.

Collector,

Lee O. Miles

ENSENADA, B.C.
Camalu
April 21st. 1951

Collection BC 21

Low tide at 2.25 PM of 0.7'

West from main highway at small store about 10 miles north of Colonia V.GUERRERO, on dirt road to CAMP CAMALU in arroyo near coast, site of "cliff dwellings in and against walls of arroyo. Old highway enters from south here, proceeds north parallel to coast, above high alluvial cliffs. Midway between CAMALU and JOHNSON'S RANCH, turn 125 yards to top of cliffs above rocky beach at SEA LION'S POINT. Down cliff where a section has fallen off within a few years. Beach narrow, of cobbles and atb several points, on boulders on bed rock. Rocks mostly conglomerates and sandstones. Strata contain many semi-fossilized sea shells. Cliffs above and non-conforming, are alluvial. Huge sandstone "tree" half out of strata, 10" diameter, circular, to oval 24" -28" ;

Collected briefly, same as below in BC 22.

Collection BC 22

ENSENADA, B.C.
Camalu

April 24th, 1951. Low tide at 4.50 AM -1.2'.

Collected at SEA LION POINT, described above as to north access; on south of point, reached beach by gully near Camp Ground.

Collections for BC 21 and BC 22 include:

- Octopus
- Sipunculids, large.
- Brittle star.
- " "
- Worms, red.
- Pholads
- Protothacus staminea
- Tegula
- Crepidula
- Rock Oyster
- Limpets, keyhole.
- Limpets, plain. *A. jello, Eschscholtz.*
- A.*

At low tide, A.M.
Acauthus lequebrus, Sby
Murex levidus, A. Adams
Novicia novicia, Sby

Not a prolific beach, but representative.

Collector

Lee O.Miles

Collection BC 23

ENSENADA, B.C.
La Playita.

April 25th, 1951. At low tide, sunrise.

Low tide 6.00 AM, -0.9' Low surf.

At rocky point just north of LA PLAYITA sandy beach, which is 2 miles north of ENSENADA. Loose boulders on bed rock on point exposed to sea, much washing sand, particularly on north side.

Collections same as for BC 24, below.



Collection BC 24

La Playita Point.

April 26th, 1951 5.30 AM - 8.30 AM

Low tide at 7.00 AM, -0.6' Low surf.

At same point as described and located above in BC 23.

Collections include:

- Sipunculids, large, under boulders.
- Chitons, many spawning.
- "
- "
- ^a Astrea undosa, Wavy Top. *Wook*
- Haliotis cracherodii, *Leach*
- " fulgens, *Philippi*
- Murex, winged. *Pteromytilus (Murex) trisulcatus*, *Hinds*
- " , or drills, plain. *Pteromytilus carpenteri*
- Norrisia norrisii, *Sowerby*
- Spire shells, small, slender.
- Clam, small.
- Hydroids
- Nudibranch
- Worm, red, under boulder.
- Encrustations on gastropods.
- Acenebra goulsoni*, *Carpenter*
- Tegula aureostriata*, *Forbes*. *Orange umbilicus*.
- Pteromytilus nuttallii* (*Purpurina*) *Conrad*.

Collector

Lee 0.Miles

BE 25 (EN I) - BE 35 (EN II)

Collection BC 25 (EN 1)

ENSENADA, B.C.
La Playita

May 2nd, 1952

Low Tide 10.15 AM, 0.5' High surf.

North of ENSENADA 2.5 miles, or $\frac{1}{2}$ mile north of LA PLAYITA, just north of Light, on rocky coast, of boulders and bed-rock of various kinds, especially lava; some sand.

Seev also BC 14, BC 23, BC 24.

Collections include:

Ischnochiton conspicuus, in various ages and sizes, in * colonies on smooth rounded boulders.

Mopalia sp., large.

Chitons *Ischnochiton (Pepidizona) clathrotes* Ree (5)

Chitons

Acmaea patina ESCH. - blue inside, flattish.

Acmaea sp, rib ed small. *A. conus*Fissurella volcanos. *Reeve.*Lottia gigantea, *Woot.*

Haminoea virescens? *Bubble Shell*, small; in numbers in Zones 1 & 2 with Algae around boulders, at edges of pools, most numerous where sand and silt meet rock.

Haliotis cracherodii, small.

Haliotis fulgens, small. Beach well picked over.

Astraea undosa

Tegula galina, speckled turban. - *Forbes.*

Acanthina?

Chama?

Intonalia $\frac{1}{4}$ *J. favosita*, *Hinds.*

Collector

Lee O. Miles

* 5 full-grown Stenoplax heathiana Berry
1 " conspicua (Dall)

Collection BC 26 (EM 2) ENSENADA, B.C.
La Playita

May 3rd, 1952

Low tide 11.00 AM of 0.5' Heavy surf.

Collected on same site as in BC 26 and others, but also
in sanded area further south toward Light.

Collections include:

Totia gigantea, Gray

Mopalia

Ischnochiton conspicuus - small specimens.

Chiton

"

Bubble shells - *Haminaea* = *H. virescens*, Sib

Pecten valves

Acmaea

Acmaea

Acmaea

Haliotis rufescens, small. Area picked over by natives.

Haliotis cracherodii, small Area picked over, Leach

Acanthina?

Pterorytis nuttalli. (*Purpura*) Conrad.

Tegula ligulata?

Collector

Lee O. Miles

Collection BC 27 (EN 3)

ENSENADA, B.C.
Santo Tomas

May 4th, 1952.

Low tide at 11.30 AM. Surf moderate.

South along main highway to SANTO TOMAS VALLEY; at foot of entering switchbacks, dirt road down valley to west to lagoon at closed mouth; north along coast to Fish Camp south side of Santo Tomas Point. Collected on south of point; then returned to old camp site half way back.

Cliffs at both collecting areas, high and rocky except for upper 10 or 12 feet, which is alluvial. Immediate fore shore, gravel and cobbles, some sand. Most of intertidal zone is loose boulders on bed rock, much of which is exposed. Much conglomerate. See also BC 11 and 15.

Collections include: *Acenebrapaulsoni*, *Carp. yellow inside*, *banks fine lines*.

- Encrustations on Tegula
- Chama?
- Cowrie shell - *Zonaria spadicea*
- Haliotis cracherodii*; small to medium large. *Leach*
- H. fulgens*; tiny only. *Philippi*
- Acanthina lugubris*, *Sly*
- Lottia gigantea*, *Gray*
- Star Fish - *Pisaster* sp.?
- " " - large pedicels
- Pateria*
- Anomia*
- Asporea undosa*, *Wood*
- Pterynotus carpenteri* - Carpenter's rock shell.
- Pterorytis* ~~*tristis*~~ - *Murex (P.) tristis* *Sly* *Hinds*
- Chiton*
- Chiton*
- Acmaea scabra*, juvenile.
- Erato vitellina*
- Tegula gallina*, *Forbes* - *Speckled*.
- Norrissa norrisii* *Sly*.
- Acanthina?*, 3 stripes, small.
- Thais-like, 2"-3", orange inside. *Acenebrapaulsoni*, *Carp*
- Crab, large heavy claws, black tips.
- ALGAE - on *Lottia gigantea*
- " - on *Acmaea scabra*.
- Pterorytis*
- Pterorytis nuttallii* *Coward*.

Collector
Lee O. Miles

Collection BC 28 (EN4)

ENSENADA, B.C.
La Playita

May 5th, 1952

Low tide at 12.00 M, 0.7' Low surf.

Off the point at LA PLAYITA, north of ENSENADA about 2 miles. Boulders, cobbles and gravel on bed rock, exposed; with much sand washing in at margins of boulder field. Volcanic.

Collections include:

- Astrea undosa, small to medium.
- Pteryotus carpenteri, "urex", fine specimens.
- Drills
- Basket shells
- Haliotis cracherodii, small to medium
- Haliotis fulgens, small.
- Ischnochitona conspicuus.
- Chiton
- Chiton

See also BC 1, 23, 24.

Collection BC 29 (EN 5)

ENSENADA, B.C.
La Playita

May 6th, 1952

Low tide at 12.30 PM. 0.8' Low surf.

Same as above BC 28, and further out.

Collections include: *Tegula gallina*, Forbes. speckled.

- Astrea undosa
- 403 ~~Pteryotus carpenteri~~) *Murex festivus*, Hinds
- 402 *Acmaea panamii*, Gray. See specimens # 400 - 403.
- Basket shells
- Cracherodii (Haliotis)
- Haliotis fulgens
- Chitons
- Chitons
- Lottia gigantea, Gray
- 401 + 400 Pterorhynchus nuttallii (Horrhouth) (*Purpura*) Conrad
- Acmaea digitalis
- A. patina
- Acmaea sp. Small, speckled margin.
- Norrisia norrisii, Sby
- Shell of red-spotted crab (like Cancer)

Collector

Lee O. Miles

Collection BC 30 (EM'6)

ENSENADA, B.C.
Punta Banda

May 5th, 1952

Low tide at 1.30 PM, of 1.3'. Low surf.

In small inlet or cove at south of base of PUNTA BANDA,
South of ENSENADA and TODOS SANTOS BAY; dirt road, rough.
Steep rocky shore, with boulder and cobble beach at base,
with sand in small areas; bed rock much exposed. Granitic.
Much ALGAE off shore, especially Kelp beds.

Collections include:

- Kelletia shells at fishermen's camp.
- Haliotis corrugata shells at camp.
- H. cracherodii, all sizes, crevices. *Finch.*
- H. fulgens, tiny only.
- Acanthina lugubis, *slly*
- Thais emarginata, *Deshayes*
- Acmaea digitalis
- A. scabra
- Lottia gigantea, *Gray*
- Mopalia sp.
- Ischnochitona conspicuus
- Chiton
- Mudibranch
- Norrisia norrisii

Land snails

Collector,

Lee O. Miles

Collection BC 31 (EN 7)

ENSENADA, B.C.
San Ysidro

May 9th, 1952

Low tide at 2.00 PM of 1.5'. High surf.

From ENSENADA, south to SAN VICENTE; west down San Ysidro Creek to coast, north to Bird Rock and iron ore dump near (S.) Point Cabras. On rocks, at Zone 1 mostly. See also 8, 16,

Collected :

- Tegula funebris?
- Acanthina lugubis, *Sowerby*.
- Lottia gigantea
- Chiton, small, orange.
- Mudibranch, yellow.
- Hydroids
- Mytilis
- ALGAE - many present, an excellent place to collect.

Collection BC 32 (EN 8)

ENSENADA, B.C.
Gomez Beach

May 11th, 1952.

Low tide at 3.00 PM of 2.0'. Surf high.

Opposite mouth of Santa Dominga Creek, closed, ending in lagoon with rushes; seepage thru dunes to sea. In Zone 1 only. See also BC 3, and succeeding collections.

Collections include:

- Acanthina lugubis, *Sly*
- Tegula funebris?
- Littorine, striped.
- Cerastoderma

Collector

Lee O. Miles

Collection BC 33 (EN 9)

ENSENADA, B.C.
Rosario.

May 12th, 1952

Low tide at 3.45 PM of 2.3'. Open to moderate surf.

From ENSENADA on main highway past Colonia V. Guerrero, Gomez Place, San Quintin Bay, to ROSARIO on Rosario River; cross river, parallel it to dirt road taking off to south and west to PUNTA BAJA, the north arm enclosing ROSARIO BAY. Beach with alluvial cliffs, cobbles, gravel and sand on bed rock; some protection from sea to north and northwest.

Coll ections at 3.00' tide includ e:

Bursa californica? *Hinds*

Jaton festivus Hinds

Fossil of above.

Tiddock - fossil. *Petricola californiensis*

Acanthina lugubris

Thais emarginata? *I. ostrina*, Gould.

Acenebra pulsoni, Asp

• *Acanthina* - Smooth dark shells. *A. lugubris*, Sib

Littorina, banded, small.

Should be an excellent collecting ground at a minus low tide. Good camping sites.

Collector,

Lee O.Miles

Collection BC 34 (EN 10)

ENSENADA, B.C.
La Playita

May 15th, 1952.

Low tide at 8.00 AM of -0.5'

Moderate surf.

North of La Playita on main highway to sign KM 101; then west to beach and 100 yards north to point with loose boulders on bed rock. Some conglomerate.

Collections include:

Ischnochitona conspicua

Chiton - mottled brown.

Tegula sp. *J. ligulata*, ~~menck~~

Slim gasteropod, 1" long.

Haliotis cracherodii. 1, 2" long. *Lead*

H. fulgens, 1/2" to 2" long.

Crab, heavy claw

Crab, small "mimus".

Crab, small Cancer?

7. Fish, small, prow nose, large fins.

~~Thin~~ shells. *Fagelus affinis longisimatis*, Phil. & L.

7. Egg Case, spiral, composition like skate cases

Acanthina sp.

Gasteropods, small.

" "

Barnacle on Oysters.

Purpura (Pteropygia) neithallii, Conrad.
Fittolina planaxis, Phil.

Ischnochitona (Lepidogona) clithratus (P.)
Ischnochitona (Stenochitona) conspicua (P.)

ALGAE.

Collector,

Lee O. Miles

Collection BC 35 (EN 11)

ENSENADA, B.C.
Punta Banda

May 16th, 1952

Low tide at 9.00 AM of -0.3' Protected from surf.

N

South of ENSENADA to MATADERO, west past Grulla Gun Club, to south end of TODOS SANTOS BAY, up to top of PUNTA BANDO, west along top to neck above Fish Camp, south down hill to Camp on cove on south side of Point.
See also BC 30.

Collections on boulders and bed rock:

- Haliotis fulgens
 H. cracherodii, *Reusch*
 Crabs, heavy jaws
 Star Fish, heavy spines.
 Drill
 "
- 413 - Tegula
- Littorines, green, worn spire. *Macoma lividus*, *s. adams*
 Crab, tiny, "mimulus"
 - ~~Erato?~~ *Conus californicus*, *Hines*
 Nudibranchs, brown-orange.
 Chama?
 Ischnochiton conspicuus *Comp.* *Stenoplax conspicuus* used by *Macginitie*
 Acmaea sp.
 Terebra?
 Acmaea, small, ribbed.
 Mussels - *Deftifer bifurcatus*, *Conrad.*
- ALGAE - Finger-like, green, with parasites.

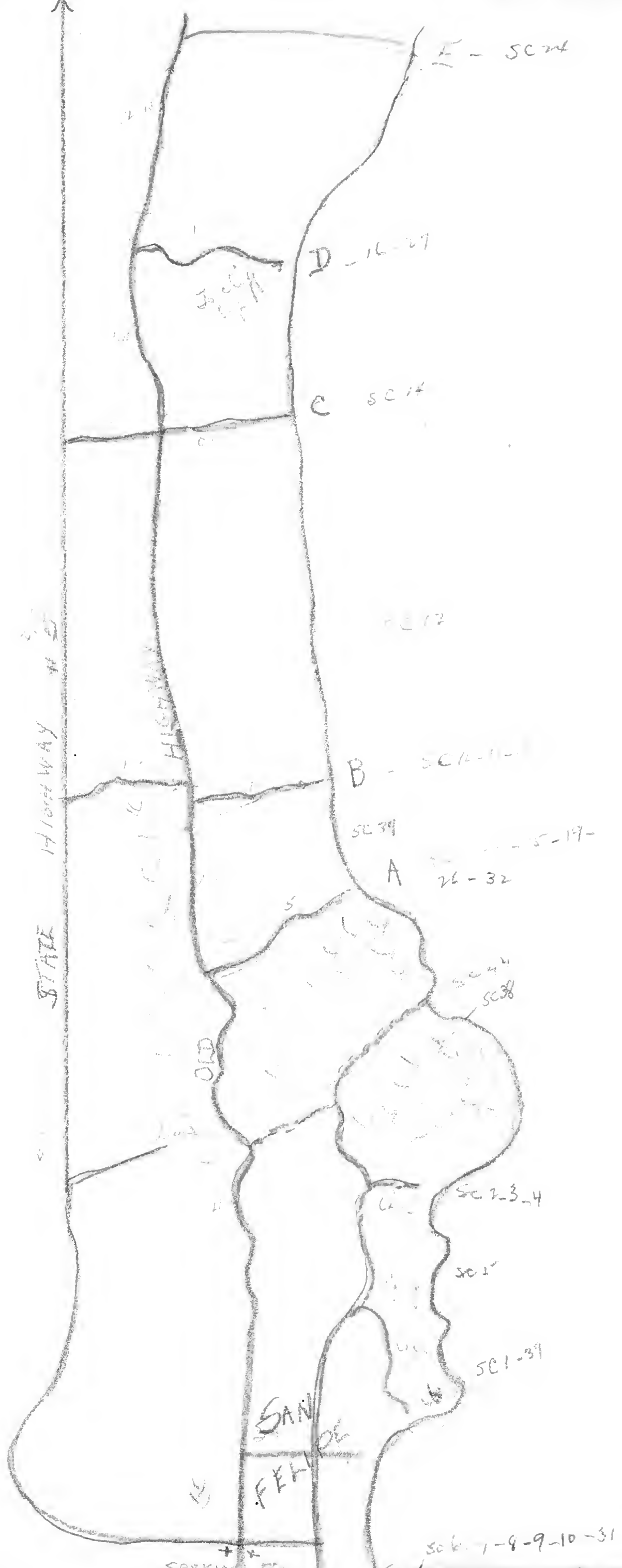
Collector,

Lee O. Miles

To MEXICALI

- Paved
- - - - - Dirt road
- ~~~~~ Water - coast
- ⌒ Mountain

No



Distances
from Avalos Motel.

2.8

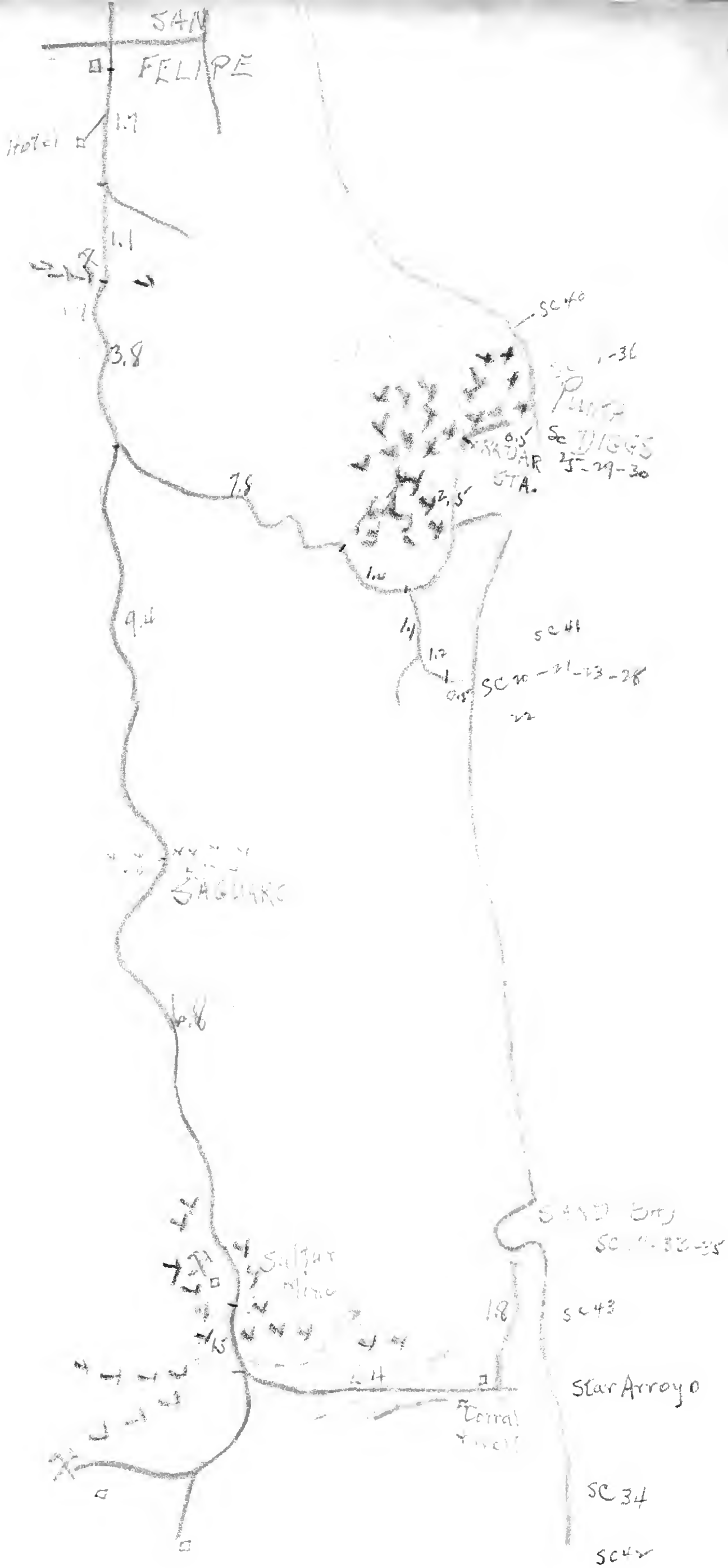
- Dirt roads,
- mts.
- Coast & waterways.

1.0

22.5

23.3

21.1 To CORRAL



SC 1-50
 P 42-89

Collection SC 1

SAN FELIPE, B.C.
north

February 17th, 1952

On the Rocky Point north of San Felipe, below Volcanoe Light;
On lava rock, no sand. Exposed to sea. Sand beaches to either side of point.
In Zones 1, 2 and upper 3.
Early afternoon at low tide, low surf.

Specimen
no. Collections include:

- 73- Nerita { *N. scabricosta*, La Murex. Yellow spines, large teeth.
- 73a { *N. bernhardtii*, R. Granular outer shell & lip.
- 32- Cup and saucer Limpet *Crucibulum spinosum*, Sibz.

Tegula, large, green. *Tegula rugosa*, A. Adams.

Black Nurex, in shallow cup on rock. *M. radix nigritus*

18. Acanthina - *A. angelica*

Shrimp, small, under rocks in upper Zone 3.

20- *Cerithium stercus-muscarum*, Valenciennes.

Collector

Lee O. Miles

February 10th, 1952

In the Sea Of Cortez, on the boulder-covered point north of the north cove at San Felipe, just south of North Mountain, adjacent to a lava flow covering granitic or porphyritic base rock. On boulders mostly granitic, some lava, averaging 10" to 14" diameter. This boulder point is quite extensive even at a tide of - 0.5, with a fairly heavy surf. It is sheltered only from the North and Northwest, and from the West, moderately. Silte to gravel under and between boulders. In the oyster-barnacle-teguja zone.

Specimen no. Collections include: 32 - *Crepidula spirocum*, Shj

19 - Tegula - *T. rufoa*; A. Adams

18 - Acanthina. *A. angelica*

Cerithidum?
Mussel

Black Murex, mostly small. *M. radix nigritus*

Clam, bent nose, heavy.

Clam, small, white

~~Petricola?~~ *Carita affinis* Calif. -

81 - Lithofaga? Borer, pea. *L. attenuata*, Shchep.

Osters Oysters. *Ostrea angelica*

Crepidula nivea

31 - *Crepidula adunca* ~~adunca~~ *Cincurva* of Brod. grey, small.

Amphissa versicolor

Pteria sp. Winged Oyster.

10 - *Solenaster pallida angularis* - Brod. & Shj

Crab, fuzzy.

Tethys? Sea Hare.

Compound Ascidea - creamy masses

Octopus, small.

Compound Ascidea, orange, orificed.

Chitons, greenish.

Brittle Stars, 2 species.

23a - *Verita heriberti* - granular outer shell.

Buried in sand and gravel, Medium sized white CLAMS, taken for food.

Turritella gonostoma, Valen.

Turricula maculosa, Shj

Collector

Prototaca grata

Lee 0 Miles

Acanthina maculosa, Shj

Collection SC 3.

1821P
SAN FEPILE, B.C.
north

February 19th, 1952

Same general location as SC 2, and same general conditions -
Collected out into Zones 3 and 4,
And north to the large rocks on the Point.
Bottom of base rock, granitic, overlain by a close-grained
very hard, fine-textured lava.
Boulders from house sized to slab-like 2' by 3', 10" thick,
interspersed by rounded boulders 10" to 14" in diameter.
No silt, little sand or gravel. Exposed to all southerly
winds.

- Spec. 30
no. Collections include: *Crepidula* sp. *C. perforans*, Valen.
39 *Pedalion chemnitzii*, Dab.
27 - Same as taken in SC 2, plus *Anachis cernua*, Lowe. Tiny black.
20 - *Cerithium stercus-muscarum*, Valen.
Fuzzy crab
Pagurus?, tiny.
Crab, 3", spotted.
Sea Anemone, red.
Sea Cucumbers, black.
Chitons. - *Ischnochiton* (*Stenocradina*) *magdalensensis* Hb. (S)
19 - *Tegula rugosa*, a. Adams
~~22 - *Tegula* sp. *T. variegata*, Gray.~~
Algae:
Bladder-like.
Corallines

Shells found at edge of boulder field,

- 9 - *Turritella gonostoma*
- *Brachiopod* - *Discinista cuningii*, Brod. (common, many)
- *Cerithi* sp. young. Collector,
Corbula bicarinata, Carp.
or *Aloides bicarinata*, Dy Lee O. Miles
45 - *Venus pulicaria*, Brod. Coarse Cone, sculpture.
Protothaca quata, Gould
Acemithina angelica

Collection SC 4

SAN FELIPE, B.C.
North

February 19th, 1952

Same area as S.C.2, but further south to the 2nd rocky point,
including the sandy beach of North Cove, as well as Reef & boulders.

Spec. No. Collections include: *Tegula rugosa*, a. adams

- Same as SC 2 and SC 3 plus
- 24 - *Olivella dama*, Mawe
Conus
 - 21 - *Nassarius leucops*, Pils. & Fome
Worms, plumed, in calcareous tubes.
 - 32 - *Crucibulum spinosum*, Shy
Sea Anemone, red.
 - 10 - *Solenostrea pallida* - Brod. & Shy.
 - 16 - *Anachris varia*, Shy
 - 18 - *Acanthina angelica*
 - 30 - *Panopaea crepidula* cf *C. perforans*, 1 spec.
C. incurva ?
Collector
Cerithium steros-muscovum

Lee 0. Miles

- *Arca solida*, Shy, Wheat grain shell
- *Fina orbigny*, Fam. sm. wh. clam.
- Prototarsa grata*
- Tellina* sp. *roblei*
- Fina labiata* - 1 valve.
- Donat navalicula*, Hanley
- 35 *Pedalion chemnitzii*, D'Orb.
- Venus pulicaria*, Brod. Coarse conc. sculpture.
- Glottidea palmeri*, Dall. Lamp Shell.

Collection SC 5

SAN FELIPE, BC
north

February 5th, 1952

Sand bar in SAN FELIPE COVE, north; same general area as SC 4, but off-shore at low tide, on a bar of nearly pure sand, separated from shore by a shallow 20foot wide lagoon with bottom of sand overlain by a shallow deposit of silt. The beach at this point is covered with small boulders in Zones 1 and 2; an occasional boulder outcrops in Zones 3 and 4. These boulders are granitic with some of hard, fine textured lava.

Specimens

no. Collections include:

- 32 - *Crucibulum spinosum*, Sib.
- 21 - *Nassarius parva leucops*, Pilb. & Lane
- 38 - *Pedalion chemnitzii*, Clark
Lamp shell, spear-like. *Glottidia palmeri*, Dall.
Finus orbigny, Lam.
Thais (floridana)
Arca solida, Sib. - what grain shell
Searlesia?
- 24 - *Olivella pedroana dama*, name
- 30 - *Crepidula* ♀ & *C. perforans*, Valen.

Collector

Lee O. Miles

February 21st, 1952

South of SAN FELIPE along the dirt road past Hotel Avalos for about 1 mile, then walk across (E) the beach row of sand dunes to the beach.

Oyster bars in Zones 2 & 3. Seaward there are 3 or 4 sand bars (depending on how low the tide is) with shallow lagoons between. The uncovered beach at 0.0 tide is 100 to 200 yards wide. The bars are of rather clean fine sand and are nearly level. Some of the lagoons contain thin layer of silt; others are clean. None are stagnant.

Journal
No. Collections were made on the bars and in the lagoons, as follows:

From the outermost bar and lagoon:

Sand dollars, keyhole, arrow. Maroon.

" " " , small green.

" " " , walnut shape & size.

From all bars and lagoons, including the outer:

- 3 - *Plinices*, small *Polinices reclusiana*, *Platys*
Polinices egg cases.
 Conus; burrow like Olive. *C. regularis*
 24 - *Olivella* ~~pedroana?~~ *dama*, *navis*
 10 - ~~*Thais* (floridana?)~~ *Dolnostira pallida* - Brod. & Shy.
 Pagurus?
 Oysters
 12 - Small spiral gastropods *Turricula maculosa*. Shy
 22 - *Terebra* cf. *T. variegata*, grey
 Pelecypods - various empty shells
Pitar alternatus - ridged rayed clam.
 Compound ascidea with the oyster.
Tivola byrenensis
 Star fish on outer bar, half buried in sand.
Carabida affinis *californiana*. *Carabida*
 Algae, red, 2".

Collector

Lee O. Miles

February 22nd, 1952

South of SAN FELIPE 1 mile by road along Avalos' arroyo, same as SC 6, then on sand bars and in lagoons for another 2 miles further south.

Lower low tide than SC 6, so further out.

Bars mostly clean sand; a shallow silting in some of the lagoons.

Collections include:

Sea Anemone, red, 12" to 14" long, shaped like a baseball bat, even to end of handle. Spread of "flower" about 3". Near outer edge of outer bar.

Sea Anemone, greenish white, lays "petals" on sand, contracts rapidly. 6" to 10" long, pencil shaped but crayon size; found with above but higher up on the outer bar.

Sand Dollar, arrow, keyhole; by the thousands on the outer edge of the outer bar and out in the shallow water, and in drainways. Brown-maroon.

Sand Dollars, like the above but slightly larger, circular, not notched; with the above.

Sand Dollars, small green, circular; usually above the above two, on the bar.

Black Murex; large specimens, usually heavily barnacled and rough; in the lagoons. *M. radix nigritus*

Hermit Crabs, possibly several species, of all sizes, in all gastropod shells.

Clam, orange, small.

Clam, white, small. *Tuccina lampra*, shell

Tellina shell.

40 Borer shells in clay bed. Young ones are so fragile, have to be handled by neck. *Borer pacifica*, Stearns

Olivella ~~pedroana~~, plentiful, great travelers, *O. dama*, Moore plow long furrows.

Nassarius ~~parvus~~ ^{leucop} smaller than above, but also make long burrows.

Star Fish, fragile armed, many on outer bars, usually at least partly covered by sand.

Sand Dollar, Porcupine, walnut shape and size; casts only.

Worm tubes, calcareous, small.

Wedgies - *Planorbis navalicula*

Tellina like but thin - white

Pitar alternatus - Collector

Cardita affinis californicus Lee 0 Miles

Ficula byronensis

Terebra cf. *T. variegata*

Heterodont

Collection SC 8

SAN FELIPE, B.C.
South

February 23rd, 1952

South of SAN FELIPE from 3 to 4 miles along the sand bars and lagoons at low tide, back along the steep sand-gravel upper beach at high tide mark for loose empty shells.

Specimen no.

Collections included: *Polinices uber* - white.

Protothaca quata

Collar of *Polinices*.

Tellina sp. white.

Sea Anemone, red, 14"

Crepidula sp., deep, narrow.

Sea Anemone, white, 8", squirts like a clam; flower-like opening.

Worm, dark-brown antennae, 1" diameter.

Tridacna byrenensis

65 - Clam, concentric lined, on dry sand bars, mostly toward shore. *Dosinia ponderosa*, Gray

Sea Anemone, small, 1/2" long, on shells.

20 - *Centrum stercus-muscarum* - pitted dark *Suctorius*, Korbly-

Black Murex, large, many on Oyster Bar on 2nd bar from shore; also on sand flats, partly buried.

Polinices, small. *P. reclusiana*

Heterostoma

24 - *Olivella* ~~redreana~~ ^{dema}, large specimens. Also some small, worn.

Centrum procerum.

Hermit crabs.

Notia cheranitzii, Pfeiffer - grey banded.

Sand Dollars; point against surf or tide flow of drainage streams (tidal)

Empty shells, a variety from high tide mark.

Cardita affinis californicus

Crucibulum spinosum Sbi

Pitar alternata

Collector

45 + 49

Venus pulicaria - Brod. *Conus conc. aculeatus*.

Clonax

Lee O. Miles

Mussel, small.

Centrum sp. many ridges.

Clam, white, small, 0

Turricula maculosa - knobby spindle.

Collection SC 9

SAN FELIPE, B.C.
South.

February 24th, 1952

South of SAN FELIPE 4 and more miles to within half a mile of the cliffs, along the base of which the sand bars continue to be exposed at low tide. A stiff Northeasterly wind with much blown sand and dust.

Spec. no.

Collections include:

- 6 - ~~Polinices~~ *Natica Chernitzki*, Pfeiffer
- 12 - *Turricula maculosa* - Sib
- 24 - *Olivella pedregana?* *dama*, Mawe
Murex rotis nigritus
Pismo like, small, brown clam. *Tinca byrenensis*
Solenostrea plicata
Worm casts
Polinices reclusiana
Wedgies - *Plouy navalicula*
nassarius leucops, Brod. & Fove
- Dead shells: *Turricula maculosa* - knobby gemlike
Pink Murex
- #9 - *Turretella gonostoma*, Valen.
Alphabet marked Clam
Cone, light.
Cone, brown
Arca.
Pteria (Winge Shell)
Spirula of Serpularia
Jingles.
Cardium procerum, Sib
- Glass floats, one mexican make.
- Fish Jaw bone.
- Crucibulum*
- Tellina* - white
- Cardium procerum*
- Cardium* sp. - many ridges
- Tigrid Clam*
- Cardium affinis*
- Terebra* sp.
- Small white O clam
- Chione*
- Protoboscus quata*.
- Mussel.

Collector

Lee O. Miles

Oyster Bar.

Collection SC 10

SAN FELIPE, B.C.
South.

February 25th, 1952

Oyster Bars from 1 to 2 miles south of SAN FELIPE, at foot of steep upper beach in Zones 2 & 3. On sandstone strata protruding from upper sand beach, about 4' below high tide mark which is 50 to 60 feet up shore. Beyond the high tide mark lie sand dunes against the base of which lies much storm wrack. At a tide of 0.0', these oyster bars are exposed, but with tide pools in and below. They are much worn.

Specimen

Collections include:

No. At upper edge:

204 - Balanus? *B. canosus*, Pallas. (Det. by Rogers, U.S.)
Acanthina - *A. angelica*

As go seaward and gradually lower:

Cerithidium? Black and white.

Ostrea, some.

Where wet at 0.0 tide and lower:

34 - ^{Prisms} *Solenostoma pallidum*, Burd + Shy.
Ostrea predominating. *Ostrea angelica*, Pallas.
Worms in black tubes

Thais

Acanthina - *A. angelica*

Cerithidium

Balanus, some.

Crucibulum - *C. spinosum*, Shy

Hermit crabs (At all levels)

Crabs, under all rocks.

Bryozoa, dark red-brown, leaf like.

Compound Ascidea, cream color.

" " , Orange.

Petricola sp. From mid-bar out, in most crevices and semi-sheltered cavities with "running water", often half covered with sand, many of these clams are found, some as much as 4" long.

Cardita affinis
californiana

Nereis leucops, Pils. & Lane

Algae:

Ulva, narrow.

Spear-like leaf, indented.

Brown filament.

Iris Moss?

Tufts, short, brown.

Collector

Lee O. Miles

Collection SC 11

SAN FELIPE, B.C.
North

February 26th, 1952

Sand beaches north of SAN FELIPE mountains north of the village. Proceeding north on Highway # 5 from the service stations at the entrance to the town, for 4.8 miles; thence on a dirt road (merely a car trail) east 1.2 miles to the Old Highway, itself an ungraded dirt road; thence south briefly to a dirt road turning east toward the beach on a gravel bench or flat, and east on this road 1.1 miles to the cliff top above the shore; or turning off this dirt road midway to the beach, to the right into a dry arroyo which leads on to the beach, but is usable only by Jeeps. This leads to BEACH "B".

Or from the point where the Old Highway was reached, south on the Old Highway 1.4 miles to another dirt road on the left running eastward to the beach on the alluvial flat. With four wheel drive one may leave this midway to the beach and proceed down a sandy dry arroyo to the shore. This collecting area is BEACH "A".

Collections on this date were made only at high tide, of empty shells. These shells are valuable only as indicating the nature of the intertidal zones. On this date and with a strong wind and heavy surf, the muddy water for hundreds of yards off shore indicate a wide intertidal zone, sandy but with some silt. The shells taken indicate also some boulder fields and oyster bars. See subsequent collections on BEACHES A and B for the actuality.

Specimen

- no. Collections include: *Protothaca grata*, Say.
- 92 — Ostrea
- Crucibulum *C. spinosum* Shy
- Anomia?
- Some cones
- Some Black Muréx *Muræx radix nigritus*
- Some clams, including
- *Laevicardium elatum*. or Giant Cockle
- 65 — Heavy flat white clam *Strocinia ponderosa*, Gray
- Mussels - *Modiolus guyanensis*
- Cockles
- ~~Petricola?~~ *Cardita affinis californiana*
- and others.
- *Jellina* sp.
- *Jurivella gonostoma*.

Collector

Lee O. Miles

Collection SC 12

SAN FELIPE, B.C.
North

February 27th, 1952

At Beaches A and B, and northward for a half mile; see SC 11.

In AM, found the tide well out, but coming in rapidly. The beach dips sharply thro Zone 1 and 2, for 50 to 150 feet; is of clean sand with some gravel. At the lower edge of this relatively steep strip, boulders begin to appear, averaging less than 1 foot in diameter, and well water-worn, of granitic and volcanic origin. From the lower edge of the steep fore-shore, boulder fields extend outward for an average of 100 yards; at the mouths of arroyos, these boulders are more or less covered by washed sand and gravel. Also this boulder area is broken here and there by patches of exposed clay and silt.

Beyond the boulder field, which is generally an oyster-balanus belt, sand bars separated by shallow lagoons extend seaward for hundreds of yards, so that at a minus tide the width of the intertidal zone is one half mile or more. The bar area is also covered with clay and silt patches where tidal carry-off has taken away the sand cover.

Specimen
no.

Collections include:

At Beach "A", in the boulder strip:

- Oysters
- Balanus
- Clams, especially Protothaca.
- 57 - Mussels *Modiola guyanensis*, La Murex
- Black Murex *M. radia nigritus*
- 19 - *Tegula angelae rugosa*, A. Adams

At Beach "B" and northward, on the steep shore, Zone 1:

Shells only:—

- ~~Petricola~~
- 32 - Crucibulum *C. spinosum*, Sib.
- Conus
- Jingles - Anomia?
- And other s
- 10 *Solenostoma pallida* - Brod. & Sib.

Collector

Lee O. Miles

February 20th, 1952

North of the SAN FELIPE Mountains, at Beach "B".
At low tide in early A.M. Little surf. Fog and tide in at 11.00 AM.
A. On the 3 to 7 sand bars exposed by this low tide, and in the intervening shallow lagoons, in some of which are clay and silt beds . 1,000 yards wide at low tide.
B. On boulders nearer shore, Zones 2 and 3, where the typical fauna is Ostrea-Balanus. Boulders average less than 12 inches
See SC 11 and 12.

Specimen
no.

Collections include:

- 7 - A. Large Conus, in outer two lagoons, with silt. *C. regularis*, Sowerby
~~Thais floridana?~~ with covering of *Solenasteria pallida*, Brod. & Ph
Sponge, orange (on above) ←
Cerithidea sp.
Sea Cucumbers, small, light to brown.
- 14 - ~~Hadibranchs, in wet sand near sea; small, creamy white.~~ *Haminosa strongi*, Baker.
Sand Dollar, brown, arrow, keyhole. (Bubble shells??)
" " green, circular, " , small.
Wedgies
Worms in balls several inches in diam, calcareous, like brains.
Worms with yellow growth.
- 3 - Polinices *P. rediciziana*, DeLonge.
~~Olivella pedreana~~
Worms, commensal with conus.
Crabs
Crab with clam valve for back.
Pagurus
- 9 - Turritella *gonostoma* Valen.
Sea Whips (Pennatulid?) in mid to outer lagoons.
Jack Knife, shells only.
- B. Black Murex - *M. rostris nigritus*.
~~Thais floridana~~, medium size only. *Solenasteria pallida*, Brod. & Ph.
Ostrea, small, crowded too much.
Sea Anemone, pink, on boulder bottoms.
Sea Anemone, green, with above.
Crabs
Pagurus.
- 34.a *Balanus amphitrite*, Darwin. (Possibly new subspecies - Rogers)
Crepidula forsteri Collector
Lyellia rugosa, Adams. Lee O. Miles
Cerithium stercus-muscarum - 6
Crepidula incurva, Brod.

Collection SC 14

SAN FELICE, B.C.
North

February 29th, 1952

North of SAN FELICE Mountains, at BEACH "C". See Map.
North on Highway 5 7.6 miles from SAN FELICE, thence east on dirt road 0.5 mile to Old Highway, north 50 feet to arroyo, east down arroyo (Jeeps only) 0.7 mile to Beach "C". Worked north along sandy shore at foot of usual alluvial cliffs.
Boulder field at this beach has been so badly sanded and silted that its usual fauna has been largely killed off. Few live Murex and Mussels were observed.

Collected:

- Solenostoma pallida*, Bwd. - Dill.
- Algae - *Ulva theniatis*?
- Acanthina angelica*
- Sand Dollars, small green keyhole.
- Crucibulum spinosum*
- Black Murex, a few. *M. rodit nigritus*
- Nassarius*
- Oysters, a few on bottoms of boulders.
- Cerithium stercus-muscarum* - speckled Littorina.
- ~~*Thais floridana*, large specimens.~~
- Tellina* sp. white.
- Polinices, *P. reclusiana*
- Protolusca* sp.
- No *Conus* observed.

Recent kitchen middens contain Clam Shells, average 4" diameter, showing that clams are taken here for food.

Shells only -
Murex rodit nigritus
Protolusca
Pitar alternatus

Collector

Lee O. Miles

Collection SC 15

SAN FELIPE, B.C.
North A

March 1st, 1952

North of SAN FELIPE on Highway 5 for 4.8 miles, east on dirt road 1.2 miles to Old Highway, south on same 1.4 miles, east on dirt road about 1.5 miles to BEACH "A", part of this last stretch down a sandy arroyo.

Collecting was at Beach "A" and south for a half mile. The alluvial cliffs above Storm mark give way to granitic and rhyolitic? rock cliffs, at the base of which and out into the sea extend boulders of lava, close-grained and hard, granite, and some shale. There is very little silt or clay.

On this date, tide not low, unable to collect out beyond the 3rd or 4th bar.

Specimen
 no. Collections include: *Cerithium stercus-muscarum*.
Cerithium sp.
 67 - *Lima byrenensis*
 Pholads in soft shale - *Banua pacificum*, Stearns. *junior*
Solenosteira pallida, Brod + Ph.
 Flat worms on boulder bottoms.
Acanthina angulica
 Clam, small brown, like Pismo
Nassarius leucops, Brod + Ph.
 Black Murex, on outer Oyster bar. *M. rosis nigritus*
Olivella dama
 Cone shell, one alive. *C. regularis*, Sby
Furcillula gonostoma - *Small specimen*
 Dentalium shell. *Cf. D. inversum*
Donat nevadicula, Honley
 Olive shells, washed up on reef where boulder field extends out 200 yards from shore.

Various Pelecypod valves, especially Cardium.
Pitar alternatus. *Fine conc. lines*.

Collector

Lee O. Miles

Collection SC 16

SAN FELIPE, B.C.
North

March 2nd, 1952

North of SAN FELIPE to Beach "D". See Map.
From SAN FELIPE, north along Highway 5 for 7.6 miles; thence east on dirt road 0.5 miles to Old Highway; thence north 1.4 miles to a dirt road running east to the beach for 0.75 miles.
Beach "D" is clean sand, with silt only in the lagoons in patches, well out. Boulder fields if any, are sanded over by wash from the large arroyo at this point. Alternate bars and lagoons extend out for over one mile at a Minus 1.0 foot tide.
As proceed north along this shore north of San Felipe Mountains, the exposed flats become more free of boulders, and more silt.

Specimen

no. Collections include:

Crucibulum spinosum

Jelly Fish, 2.

Natica chemnitzii, Pfeiffer - Gray banded.
Sea Squirts

203

Barnacles *Balanus amphitrite* of *albostatus*, Pilsbry.
Pitar alternatus - Rayed ridged clam. Fine (Rays) conc. sculpture
Tagelus

Turricula maculosa.

Ensis

45

- *Venus pulicaria*, Brod. Conc. conc. sculpture.
Small red clams (Tellina?)

Wedgies *Donax navalicula*

Various dry shells and valves, including

64

- *Laevicardium elatum*, Sib

65

- 6" flat heavy white clam. *Dosinia ponderosa*, Gray

Black Murex shells, large. *M. rebus nigritus*

Collector

Lee O. Miles

Collection SC 17

SAN FELIPE, B.C.
Sulfur Mine Arroyo

March 3rd, 1952

South of SAN FELIPE to Sulfur Mine at 23.3 miles; thence east toward the beach 4.4 miles to Water Hole Corral near shore, in arroyo bed; thence north along dirt road 1.8 miles to Sand Bay. Tide well in, most of collecting done at or near high tide mark. At this time, this bay is quite an impressive body of water, and here and on the outer sea beach, the bottom seems to drop away rapidly and there seems to be no bars. However, later visits at low tide - see SC 33- show that at low tide there is no bay except for tide pools and streams; and that sand bars are exposed fully a mile off shore.

Specimen

Collections include:

- Wedgies *Donax navalicula*
- Coral
- Sand Dollars, green, circular, keyhole.
- " " , brown, arrow, keyhole. *Eucopa*
- Hydroids
- Sea Squirts
- Tethys
- Crabs, swimming.
- Crabs, small, with heavy claws.

Empty shells:

- Cowrie
- Olive *Oliva angula*, Lamarck
- Cones
- Atrina (Pen)
- Strombus
- Pecten, 1 valve deep. one flat.
- Jewel case clam, $\frac{1}{2}$ "
- Clam, large, flat.
- Laevicardium *elatum*
- 13 Bubble - *Bulla gouldiana*, Pilsb.
- Ensis
- Lyonsia sp. *juvula*
- Polinices, large. *P. reclusiana* *Reclus*
- " striped or banded. *Polinices biposita*, Gray
- Tellina simulans* - (red) Collector
- Turricula maculosa* Lee 0.Miles
- Togelus californicus*
- Chione* sp. - tiny

- Cardium, small. *C. allenense apicum* Corp.
- " large
- Pteria (Winged)
- Pink Murex
- Black Murex *M. radix nigritus*
- Ficus
- 51 - *Turricula byrenensis*, Ray

Collection SC 18

SAN FELIPE, BC
Pta Diggs

March 4th, 1952

PUNTA DIGGS, 18 road miles, about 10 by boat, from SAN FELIPE. Leaving Avalos Motel, proceed south along dirt road below Hotel; at 2.8 miles, pass Little Mountain Mine; at 4.5 miles pass a branch road leading west; at 6.6 miles, reach main fork, take fork to east toward coast; at 13.1 miles reach foot of first ridge of DIGGS MTS; at 14.4 miles, a branch road takes off southeasterly for beach at SAND POINT; continue on left fork, skirting the mountains, turning abruptly north at 15.2 miles; proceeding north parallel to ridges to foundations of ole Radar Base at 17.4 miles. This is 0.5 miles across dunes to beach.

PUNTA DIGGS is actually 4 points. The first, most southerly one, is mostly clean sand; overlaying this sand toward the north is a strata of rock 3 to 4 feet thick, not in layers but seemingly consisting of many irregular flows of lava heavily embedding shell fossils, mostly pelecypod. A sandy-gravelly cove interposes between this and the 2nd point, which differs from Point 1 mostly in having a thicker rock layer. Another cove and a third point, the rock strata increasing in thickness to 10 to 12 feet, similar in composition to that of the southerly points but with some layers of nearly shell less sandstone. Here the rock strata submerges and extends an undetermined distance to sea. The most northerly point resembles point 3. The origin of these fossiliferous strata was not determined; the main body of DIGGS MOUNTAIN is granitic, a batholith that has eroded into a number of radiating ridges. Heavy shrubbery grows at the base of these mountains. Near the Radar Station lies and unusually dense grove of sajuaros. A similar stand lies west of the ridges. On the dunes east and south, sand lilies, large white evening primroses, mallow and various composites are plentiful at this season.

- Collections along the high tide mark, include:
- Pink Murex
 - Black Murex, alive. *Murex rotus nigritus*
 - Nerita in the splash zone.
 - Petricola? alive.
 - Ensis shells
 - Protothaca
 - Olive *Oliva angula*, Lamarck
 - *Pteria* (Wing)
 - Star fish, dried.
 - Hydroids
 - Tethys
 - Gorgonids
 - Encrustations, various.
 - Corallines
- Venus pulchra*
Pitar alternatus
Tellina similans (Red)
Tellina, sp. (white)
 Sailors Ear.
 Murex
Solen rosaceus?
Pecten velus - fossil.
Pecten vogelii, removed. Dup.
- Collector
Lee O. Miles
O. Clem

- 13 - Bubble shell - *Bulla gouldiana*, Pils
- 15' *Gonaria sordida?* Not common as far as I know.
- *Cryptomya californica*, Coum. Sm., mya-like white clam.
- Cardita affinis californicus*
- Solen*, sp. juv.

Collection SC 19

SAN FELIPE, B.C.
North *

March 5th, 1952

North of SAN FELIPE at Station "A", collecting south along the beach, east of the mountains, past 3 granitic points and the coves they contain. Boulders, sand and gravel are almost purely granitic, with little silt, and a relatively narrow (200 yards) belt of sand bars exposed at low tide.

Specimen

Collections this date were made in the Ostrea-Balanus zone:

no. *Cardita* *affinis* *californiana* - (*leucostriata*)
Black Murex, in plenty, rather clean. *M. radis nigritus*
Solenostoma pallida, Brud. & Pby.

Petricola?

Polinices uber, Idem

Protothaca - *P. grata*

nasutus leucops

Limpets, plentiful. *Acanthina* *muscorum*, *Idem*

Alonot *navalis*, Stanley

Crabs, many

Cerithium stercorarium, Valm.

Flat Worms

Chitons

Thais

Crucibulum *C. spinosum*

Fish - eel like, &c

27

Anachis cormen - tiny black gastropods

ALGAE

Shells - *Lurricula maculosa*

Chione sp.

Collector

Lepeta

Lee O. Miles

{ *Muscul.*

Modiolus guyanensis

Pitar alternatus

Venus pulchra

Collection SC 20

SAN FELIPE, B.C.
Pta Diggs

March 6th, 1952

South of DIGGS MTS at SAND POINT.

From Avalos Motel in San Felipe, south 6.6 miles; here take to east or left fork and proceed southeasterly 6.5 miles to the foot of the first ridge to the Diggs Mts; continue east 1.3 miles; take the right fork 1.1 miles, thence an additional 1.2 miles along the left fork to the top of a low mesa or bench 16.7 miles from Avalos. This overlooks the sand dunes which extend a half mile to the beach. A Jeep can make this half mile, but with difficulty. SAND POINT extends briefly to the east, and is a fine repository for empty shells brought in by the surf at high tide. The foreshore is abrupt and narrow, of clean sand and gravel; from its foot, low sand bars extend a mile to seaward, running at a slight angle to the beach, draining slightly to the north by half a dozen lagoons. An occasional bed of clay or sand-covered silt, or silt-covered sand, is found.

Specimen No.

Collections include: Shells empty, from high tide mark.

- 37 - Tellina, red *J. similis*, *C. badam*
Conus, small dotted.
Olive - *O. incornuta*
- 24 - Olivella ~~pedunculata~~ *dama*, *marie*
Cardium *C. procerum* *Sb.*
Laevicardium, fairly abundant.
Dosinia ponderosa, white, circular, flat, 4"-6".
Ensis
Barnacle, red, large.
Barnacle, small, volcano.
Eggshell cardium
Black Murex - *M. radit nigritus*.
- 3 - Polinices, large, brown. *P. reclusiana*, *DeKay*
- 5 - " , small, white *P. ruber*, *Valen.*
- 6 - " banded, gray, medium. *M. chemnitzii*, *Pfiffer*
- Sand Dollars, green, circular, keyhole.
Aletas (Like worm tubes.)
Ficus
Donax
Nassarius ~~parva~~ *N. leucops*. *Brod. & Sord*
- 67 - Pholads - *Barnes pacificum*, *Stearns*. *Jarvis*; in clay beds.
Cast of Small spider crab
Pitar alternata, fine conc. sculpture
Solenostera pallida - a junk? Collector
Heterodonax bimaculatus, *Sims*. Lee O. Miles
- 45 - Venus pulchra, *Brod.* Coarsely conc. sculpture
- 55 - *Livella byrenensis*, *Ray*
Invitella gonostoma, *Valen.*

Collection SC 21

SAN FELIPE, B.C.
Pta Diggs

March 7th, 1952

Same collecting area as yesterday's SC 20; storm last night has ~~ex~~ enriched the beach, especially at the sandy point.

Collections include the following shells:

- Same as collected in SC.20, plus
- 43 *Livella byrenensis*, Bay
- Calliostoma palmeri*, Dall
- Architectonica nobilis*, Boulton
- Cardium* - *C. procerum*, Sby
- Crucibulum*
- Encrustations, like stalanites.
- Corcardium elatum* Sby
- Ensis*
- Pitar alternatus*
- Geoduck? valve
- Venus pulicaria*
- Maeona*, bent nose. *Sailor's Ear*
- 5 - *Polinices uber*, Valen.
- Furinus* sp. juvenile

Collector

Lee O. Miles

Shells only: # 20 & 21

- Pecten vogdesi*, small. Deep valve.
- Sailor's Ear*.
- Conus ximenesi* - speckled, purple.
- C. regularis* - larger, orange marks.
- Pholus dilecti* - angel wing (Ply & Lowe)
- Cardium* - 1 rib only.
- Tellina pinnulosa*
- Venus pulicaria*
- Tritella gonostoma*, Valen.

Collection SC 22

SAN FELIPE, B.C.
Punta Diggs

March 8th, 1952

South of Avalos Motel in SAN FELIPE about 16.7 miles, and south of Punta Diggs and the Diggs Mountains, over the same areas collected in SC 20 and SC 21, but extending several miles further south along the sandy beach, and out on the sand bars in Zones 3 & 4. The beaches were of clean and coarse sand and gravel, with only a few small cobbles; with some silt in patches in the lagoons.

Collections include alive: *Venus alternatus*,

Crucibulum spinosum

Cardium, small

5 - Pismo-like small brown clam. *Tridacna byrenensis*, Ray
Olive

24 - *Olivella dama*, name

Polinices, *P. recluziana*, Deshayes. With Sea Anemone

" banded, gray *Natica chemnitzii*, Pfeiffer

5 - " milk white. (~~Natica~~) *Polinices siber*, Valen.

Sea Anemone on Polinices,

" " 12", white, in sand.

Hermite crab, large, heavy claws

~~Thais floridana?~~ *Thais navalis*, Hawley

Iris lamellifer? Ribbed Clam.

Solenostoma pallida, Brond & Ady.

Dead shells:

9 - *Turritella T. gonostoma*, Valen.

Laevicardium l. elatum

Dosinia D. ponderosa, Gray.

Atrina (Sea Pen)

Pteria (Winged)

~~*Solenostoma*~~

Tellina?, pink, to 4".

Casts of Porcupine sand dollar, walnut shape and size.

Solenostoma

33 - *Pyrene foscata*, sby

Pecten sp - flat.

Pecten vogelii, Arnold. ^{Collector,} 1 shell, 1 flat valve.

Lee 0. Miles

Crucibulum spinosum

Tridacna californiana - broad footings

Pholad - *Arctia* wing - *Pholad dilecta*, Pby & Sore

Mussel, banded

Altes.

Collection SC 23

SAN FELIPE, B.C.
Punta Diggs

March 9th, 1952

South of San Felipe and the Diggs Mountains and Point, over the same areas as in SC 20 and SC 21, but further out on Pelican Bar, a good mile long and the highest of the bars off Sand Point. One bar and intervening lagoon lies to the seaward, and much marine life has been washed out of it and on to Pelican Bar, especially on the west or landward side.

Collections include:

- Alive: *Natica bifasciata*, Gray. Brown banded.
- Clive. A plowing gastropod, easily located.
- 24 - *Clivella davis*, Mawe
- Ridged Clam, 1 1/2" clam
- ~~Natica~~ (White, small) *Polinices uber*, Valen.
- ~~Natica~~, Gray, banded. *Natica chemnitzii*, Palma.
- Donax navalicula*
- 3/a - *Crepidula* on *Polinices* *C. incisa*?
- Compound Ascidea
- 3 *Polinices*, ~~Recluziana?~~ *P. recluziana*, Desch.
- Sea Squirts

Dead:

- Atrina*, small (Sea Pen)
- Pecten diegensis*? One flat valve.
- Chlamys* (Scallops).
- ~~Cardis~~ *Cardis affinis californiana* Desch.
- 64 - *Laevicardium elatum*, Sib.
- 26 - Pink Murex *M. erythrostroma*, Swinson.
- Calliostoma* sp. *C. palmari*, Dall. Creamy.
- Conus*
- Red *Tellina*
- 9 - *Turritella T. gonostoma*, Valen
- Turritella californiana*

ALGAE

Shells:

- Polinices recluziana*
- Crucibulum spinosum* Collector
- Big red burside
- Conus regularis* Lee O. Miles
- Pitar alternatus*. Rigid clam.
- Venus pulchra*, Brot. Heavy conc. ridge. A chord.
- Solen of *S. rosaceus*.
- Spindle ~~large~~ white.
- Terebra* of *T. variegata*
- Periploma plumicula*, Sib. Thin shell, bent over, 3 1/2"

Collection SC 24

SAN FELIPE, B.C.
North E

March 10th, 1952

Collected briefly (not a low tide) at Beach "E", well north of previous collections north of SAN FELIPE and its mountains - From the Service Stations at the entrance to town, south along paved highway # 5 for 7.7 miles; thence east on a dirt road 0.4 mile to the Old Highway (dirt); thence north; at 0.1 miles could have turned east to beach but did not, continued north 1.7 miles and turned east to beach parallel to an arroyo for 1.4 miles.

The beach at this point is sand and gravel with silt and clay much in evidence, apparently increasing as go north toward the head of the Gulf and the mouth of the Colorado River. The alluvial cliffs fronting the beach have been gradually getting lower and have disappeared at Beach "E". Many shells are present, semi-fossiliferous, blue from the clay in which they have been embedded; of present day varieties.

Collections at high tide and at storm marks include:

Ficus

Kelletii?

Aletes

Crucibulum

Pecten

Cardium

Black Murex

&c.

Collector

Lee O.Miles

Collection SC 25

SAN FELIPE, B.C.
Punta Diggs

April 1st, 1952

South of PUNTA DIGGS, on sand flats exposed at -0.5' tide, and at high tide mark on steep upper beach. Mostly in Zones 2 & 3, Zone 4 not exposed at this tide. See SC 18

Collections include: *Passerinus leucops*

Live - *Venus pulcherrima*, Brod.

Hermit crab in Pink Murex shell.

Olive *Oliva incrossata*

Conus *regularis*? Heavy brown unbroken stripe, on orange.

Small crab

Sand Dollar, small, green, keyhole.

25 - *Natica lactea* *Polinices uber*, Valenci.

24 - *Olivella dana*, Mace

Donax varollicula

Clam, small, brown. *Cardita affinis*

22 - *Terebra* 9/4 *T. variegata*, Gray.

Shells only -

Turritella

Cowrie

Bulla

19 - Small clam *Chione quida*, Brod. & Sbj

Blue crab cast.

26 - Pink murex - *Murex erythrostroma*, Swanson

Chione fructifera, Sbj

Protolysca grata

Jugosa

Balanus? Large, red.

Chione quida (Chion)

Collector

See O.Miles

Semi-fossilized -

Turbo *byrenensis*

Pecten

Polinices reclusiana

Shells only.

Tellina sinuata, C.S.A.

Tellina sp.

Turbo californianus

Crepidula sp.

Heterodonax

Pitar alternatus

Pitar alternatus ? 1. Fine conc. scaly.

Venus pulcherrima same " "

Collection SC 26

SAN FELIPE, B.C.
North - "A"

April 2nd, 1952

North of SAN FELIPE MTS at Station "A". Because of tide, unable to get far out on sand bars, collected mostly on inner bars and among small granite boulders, and in pools. See also SC 10, 11, 15, & 19.

Specimen

No. Collections include: *Donat novalicula*
Tegula rugosa
Blue Crabs in pools.
Cardium sp.

18 - Small crabs below boulders.
Acanthina angelica
Mussels
Nucula leucops
Protothacus *P. gratia*

Octopi

Balanus

Ostrea - *O. angulica*, Rock.

Jelly Fish

Sponge on ~~*Thais floridana*~~ *Solenastrea pallida*

32 - Crucibulum *C. spinosum*, sby

Drills

Sea Anemone on bottom of boulder.

Yellow polyp?

Algae, *Pilayella*
Pilayella alternata

Collector

Lee O. Miles

Collection SC 27

SAN FELIPE, B.C.
North - "D"

April 3rd, 1952

North of SAN FELIPE MTS to Beach "D", driving to cliff top, thence down gully cutting thro these alluvial cliffs to shore.
Tide - 0.3', less than half of bars exposed. Surf moderate, but water muddy.
Accompanied by a Mr. Nichols, malacologist of Riverside, Cal.
See also SC 16

Collections include:

~~Polinices~~ banded, brown. *Natica bifasciata*
Chione fructifraga, Sby. Heavy large clam.
Balanus

~~Hytilus~~ *modiolis guyanensis*, Lamarck

~~Thais floridana?~~ *Solenostearia pallida*.

Crucibulum spinosa

Black Murex; large, heavily barnacled. *M. radix nigritus*

~~Cerithiidae?~~ *Terebra* cf. *T. variegata*

Natica chemnitzii, Pfeiff.

Olivina incroscata

Collector

Lee O. Miles

Collection SC 28

SAN FELIPE, B.C.
Punta Diggs

April 4th, 1952

At SAND POINT south of PUNTA DIGGS, on sand bars exposed at low tide, and in intervening lagoons and tide streams.
See also SC 20, 21, 22 & 23.

Specimens
No.

Collections include:

Hermit in *Polinices reclusiana*.
Hermit crab)
Sea Anemone) all on a Black Murex shell.
Hydrids)

- 35 - ~~Natica lactea?~~ *Polinices siber*, Valenciennes.
- 1 - Banded *Polinices*, *guy.* *Natica Chamnitzii*, Pfeiffer.
- 3 - *Polinices* sp. Large brown. *P. reclusiana*, Reclus.

Clam, small brown, like Pismo. *Tivela byrenensis*
Heterostus bimaculatus
Olive

- 24 - *Olivella dama*, Moore
Gorgonid, red
Gorgonid, yellow
Black Murex *M. rotif nigratus*

Also shells of above, empty, and others -

Pecten, flat valve.
Pecten.

Collector
Lee O. Miles

Collection SC 29

SAN FELIPE, B.C.
Punta Diggs

April 5th, 1952

South of PUNTA DIGGS, east of Radar Station.
Steep upper beach of sand and gravel, backed by low alluvial cliffs, in turn backed by sand dunes. At foot of steep beach, mostly Zone 1 and 2, sand bars with usual lagoons are exposed at low tide in Zones 3 and 4. Some boulder fields, Z 3.
See also SC SC 18 and 25.

Specimen
No.

- Collections include: *Anas carolinensis*, Forst. (2 in 1 block)
Cerithium stercus-muscarum, Valen.
Pteria, wing shell. *P. sterna*, Gould.
Cling Fish
Other small fish
Eggs, yellow, in matted cords.
Crab case
Gorgonids, pale.
Crabs, small black, heavy claws; in boulders.
Hermit Crabs
~~Thais floridana~~ *Solenostera pallida*, Brod. & Pl.
Black Murex, especially small, white. *M. rotig-nigratus*.
3 - Polinices plain, brown. *P. reclusiana*, DeCade
4 - " banded *P. bifasciata*, Gray.
14 - ~~Nudibranchs?~~ *Hammonia stroupi*, Saker. Bubble shell
Olive - *Olivina incrossata*, Solar.
Olivella - *O. dama*, More
Sea urchins, 2 species?
Littorines, speckled.
Clams, small, asst'd; white, blue, pink, brown.
Atrina, rough, in boulder fields.
Scotch Bonnet, 2 mating at foot of steep beach, taken by Browns.
SHELLS:
Thais, large mouth, orange interior. *Acanthinus muricata*, Brod.
Spindle shells, small, with Pagurus.
Caribba affinis.
ALGAE -
Codium fragile

Collector

Lee O Miles

Collection SC 30

SAN FELIPE, B.C.
Punta Diggs

April 6th, 1952

South of PUNTA DIGGS, east of Radar Station.
Same as SC 29, but out on first sand bar (from shore) and in
intervening lagoon. Practically no silt - a long lagoon,
shallow, much of bottom fairly free of ripple marks, sandy,
with a little surface silt in patches.
See also SC 29.

- Specimens
7 - Collections include: *Cardium procerum*
Conus sp, where some silt. *Conus regularis* Sby
Black Murex, most common, small. *M. ruber nigritus*.
Pteria, wing shall, among boulders with above. *P. sterna*
Atrina, rough, boulder field.
Olive - plentiful, along and in lagoon, both shores. *O. inornata*
3 - Polinices, large, plain. *P. accluziana*, Deshayes
6 - " Grey, mottled
5 - " White *P. ruber*, Valen.
4 - ~~Natica~~ striped br & wh. *Natica fasciata*, Gray.
Tehtys
Crab, pebbled claws
Other crabs
Sinum ~~scopulosum~~ - Ear Shell. *S. debile*, Gould
55 - Clam, brown, Pismo like. *Tivela byrenensis*, Ray
Octopus
Cling Fish
Small frilled fish
Shrimp. dark green.
Gorgonis, Red
24 - Olivella *dama*, Mawe
Nassarius parva?
Spindle shells
Sand Dollars, small keyhole.
Worms, distended, in sand and silt, flower-like.
Brittle Stars
Twenty Ray, knobby stars.

ALGAE, 2.

Solen rostratus

Collector

Lee O. Miles

Collection SC 31

SAN FELIPE, B.C.
South

April 9th, 1952

South of SAN FELIPE on sand flats outside the oyster bars, and in intervening lagoons. Area too well picked over by natives as well as tourists.

See also SC 6,7,8,9,10.

Collections included:

Sand Dollars, keyhole, large, brown.

Olive

Neck of largs clam seen on inner margin of sand bar 2nd out from Shore; unable dig him out account sand caved in, and quite deep.

ALGAE.

Collector

Lee O.Miles

Collection SC 32

SAN FELIPE, B.C.
North - "A"

April 10th, 1952

North of San Felipe Peaks, at Beach "A";
in early morning at low tide;
to the south of the main arroyo draing past the mountains,
among the boulders in Zones 1 to 3.
See also SC 11, 15, 19, 26.

~~Specimens~~
no

Collections include: *Murex radix nigritus*

7 - Conus, where sand is overlain by silt, thinly. *C. regularis*, Sowerby

63 - Olive *Olivia increscens*, Solan. (*O. angula*, Lamarck)

Olivella o. dana?

Worm tubes

Crabs, small, round, marked.

3. *Polinices* sp. Large, plain. *P. reclusiana*, Deshayes

Spindle - ✓

9 - *Turritella gonostoma*, Valen.

62 Black Murex *Murex radix nigritus*

14. Bubble Shell - *Haminoea strongi*, Baker

ALGAE, on boulders.

Shells only.

Protothaca quata

Pitar alternatus

Cardita affinis californiana

Cardium pumum.

Heterodonta binaculata

Collector

Lee O. Miles

April 11th, 1952

At SAND BAY, , between PUNTA FERMIN and PUNTA DIGGS;
reached by by dirt rad south of SAN FELIPE for 22.6 miles to
SULPHUR MINES, thence on south 1.5 miles, then east 4.4
miles to Water Hole and corral near beach, thence north
parallel to beach for 1.8 miles to south edge of SAND BAY.
This Bay, see SC 17, is almost circular at high tide;
but at low tide is an expanse of exposed sand bars, extending
seaward over 1 1/2 miles. At the west edge of the "bay" are
several exposed boulder fields. Silt and clay are found in
patches, especially in some of the tidal run-offs.

- Cerithium sp.
Protolima grata
- Fucinum* Collections include:
no. On Oyster bars (Boulders) *Crepidula incurva*, Brod.
Oysters
Crabs
Black Murex in silt nearby, *Murex ruber nigritus*
Pink Murex, preying on Conus. { *Murex erythrostoma*, Swainson
Sea Anemone { *M. bicolor*, Valen.)
Twenty ray beaded star fish
- 42 - *Acauthina muricata*, Brod. *Larynx unicorn*.
On Sand Flats, especially well out: *Fischia byrenensis*, Ray.
Conus, large species, a few.
- 8 - Conus ~~regularis~~ *ALBERTI*, Gray, spotted, many.
4 - Polinices, brown banded *Natica bifasciata*, Gray
5 - " *whet* small white. ~~*Natica chelonicus*, Pfeiffer~~
3 - " plain, brown. *P. reclusiana* - Deshayes
63 14 - Olive; most plentiful. *Olivia incrassata*, Solan. (*O. setigera*, Salm.)
24 - *Olivella dama*, Mawe
Donax - *D. unalucula*, Hanley
- On sand flats, closer to shore: *Solenostrea pallida*
7 - Turritella, small. *T. gonostoma*, Valen. *O. volutella*
x - *Olivella salutella* - Unknown. *Cerithium stercus-muscarum*
Sea Anemone, long, creamy, buried. Valen.
Polinices, large brown. *P. reclusiana*
Donax
- 22 - *Terebra* sp. *J. variegata*, Gray
In silt on sand:
Conus, large
Polinices, large brown. *P. reclusiana*

A rich collecting area.

Collector

Lee O. Miles

Values of Pecten.

4 - W.D. Follett, Acad

Collection SC 34

SSAN FELIPE, B.C.
Sulfur Mine.

April 12th, 1952

From camp at water hole and corral near mouth of ARROYO ESTRELLA (Star Gulch), collected south along beach for some 4 miles. Sand dunes above alluvial cliffs, low here; below cliffs, sand bench, low and narrow, storm swept, then high tide marks at top of steep fore shore, Zones 1 & 2; and below this, seaward, 2 to 4 sand bars with usual dividing lagoons and bisecting tidal run-offs; with occasional exposed tongues of lava boulders running out to low tide into Zone 4.

- Specimens
no
- 7-Collections include: *Loricarium elatum*.
Haminoea strongi (Bubble shell) Baker.
 - 7 On Sand Bars: *Conus regularis*, Sib; *Pecten circularis*, Sib
Olive *Olivella angata*, Fumark.
 - 24 - *Olivella dama*, Nelson
Polinices, plain brown. *P. reclusiana*, Deshayes
Sand Dollars, keyhole, green.
" " " " brown, arrow shaped.
" " " " circular, large.
 - 58 - Scotch Bonnet, buried like Polinices. *Cassia centroquadrata*, Valen.
Twenty Ray Star Fish, many.
On rocky boulder fields:
 - 52 - *Pteria sterna*, Gould. *Whigleyi* *Cerithium stercus-muscorum*
Atrina, rough. (Pebbled dark *Pittornis*, Knobby)
 - 1 - *Strombus pugilis* *gracilis*
" *alatus*? young of above. *Cryphalus* of *C. perforatus*, Valen.
 - ALGAE, broad leaf, with
Bryozoa on above.
Compound Ascidaea, red.
" " yellow
Worm, red.
" black.
 - 14 - } Crab, heavy claws 3-4"
12 } Spindle shells, 2" to 3". Alive. { *Imusclaria penderlaini* - Lowe
Turricula maculosa, Sib
Star Fish, long spined, 5 arms.
 - 7 In lagoons. Fish - *Aboma* sp.
Pink Murex
Sea Urchins, long heavy spines.
" " long, slender purple spines.
Hermit crab, large, in Black Murex.
Twenty ray Star Fish.
 - 10 *Solenostoma pallida* - Brod. & Sib - on bars.
Whale skeleton midway on beach, near high tide mark.

22 - *Terebra* of *T. variegata*, Gray.
Prototaca grata

Collector

Lee O. Miles

April 13th, 1952

See also SC 17 and 33.

North of Camp at Water hole and corral in ARROYO ESTRELLA, east of Sulphur Mines, in SAND BAY and on outer bars as much as 1 1/2 miles off high tide mark.

- ~~Specimens~~ Collections include: *Protobornia grata*
- No. From bars, lagoons and run-offs 1/2 to 1 mile offshore.
 - 8 - *Conus regularis* (Spotted) *C. Ximenesi* - Gray
 - 63 - *Oliva angula*, Lamarck - or *O. incosata*, Solan.
Olivella dama, Murex
 - 55 - Clam, brown to 2.5 inches. *Tivela byrenensis*, Ray.
Penatulids
Spider Crabs
Sand Dollars, keyhole, arrow.
" " " small, green
" " " large, brown, circular.
 - 4 - Polinices, banded. *Natica bifasciata*, Gray
Donax - *D. nassalicula*
ALGAE, like knotted string
 - 6 - *Natica chemnitzii*, Pfeiffer
From bars and lagoons inshore, in "Bay", on or near Oyster Bars.
Black Murex - *M. rotif nigritus*
 - 7 - Cones, large striped, in pairs. *C. regularis*, Sby
 - #3 - Polinices, large, plain. *P. reclusiana* - Deshayes
 - 10 - Drills - *Solenostoma pallida*, Brod. & Sby
Oysters
Balanus
Cerithidium
Nassarius ~~parva?~~
Hermit crab in Polinices.
Tenebra sp.
- From Splash Zone, in moist sand:
Fiddler Crabs.

Turricula maculosa - Collector
Crucibulum spinosum - small, knobbed.
Lee 0. Miles

Collection SC 36

SAN FELIPE, B.C.
Punta Diggs.

April 15th, 1952

South of San Felipe and south of DIGGS POINT AND MTS, just north of the beach "road" past the old Radar Station - north from this road about 1 mile.

Worked sand bars and boulder fields; the inner lagoon and the foot of the steep shore, Zone 2, especially prolific.

Specimens

Collections included:

- no. 42 *Acanthina muricata*, Brod. Large orange unicorn.
- 63 Olive-*Olivina mucronata*, Solan. (*O. angula*, Formosa)
- 3 Polinices, plain brown. *P. reclusiana*, Deshayes
- 4 " banded *Natica fasciata*, Gray
- " grey, mottled. *Natica chemnitzii*, Pfeiffer.
- Black Murex - *Murex ruber nigritus*
- Olivella *O. domus*
- Gorgonids
- Atrina, rough -
- 55 Clam, small brown, Pismo-like. *Tivela byrenensis*, Ray.
- 10 *Thais fibridana*? *Solenostaira pallida* - Brod. & Sby.
- 28 - Keyhole limpets *Diadora inaequalis*, Sby.
- Crepidula *C. nives* cf. *C. perforans* Valen.
- Chitons - *Chetopheusa* (*Pelochiton*) *lamiginosus* (Grs) Pils. ⑤
- Turritella *T. gonostoma*
- Bulla sp. Look like nudibranchs.
- Crabs
- 57 *Simun debile*, Gould. Egg shell
- 7 Cling Fish - *Molacoctenus* sp. - cf. *M. delaudi*
- 7 Fish, small, from under boulders. *Cotylis* spp.
- Shrimp.
- Croakers under rocks; not taken.
- 5 Polinices *uber*, Valen, (white)
- Venus pulicaria* - shell only
- Pteronotus* " " Collector,
- Terebra* cf. *T. variegata*
- Strombus gracilior* -
- Spindle.

Lee 0. Miles

Collection SC 37

SAN FELIPE, B.C,
North "A"

April 16th, 1952

North of SAN FELIPE MTS, at Beach "A";
worked sand bars and boulder fields, north from the arroyo
down which reached the shore, to and past beach "B".

Collections include:

- Black Murex
- 3 - Polinices, plain, large. *P. rosalyana*, Dacloy
- Polinices, grey, mottled. *N. chumitzi*, Pfeiffer
- 32 - *Crucibulum spinosum*, Shy

Collector

Lee 0. Miles

Collection SC 38

SAN FELIPE, B.C.
South by boat.

April 17th, 1952

South by small boat to N. end of PUNTA DIGGS, to a double
cove, both shallow and exposed; tide not low, little result;
but shells on exposed beach indicate rich yield at a lower
tide. Today, only one bar exposed.
South of this double cove, strata of fossiliferous rock
slants down into water gradually. Not greatly worn.

Collections include:

- Crabs
- Merita
- Chitons
- 32 - *Crucibulum C. spinosum*, Shy
- 65 - Clam, heavy, white; valves.
- Oyster
- 81 - Pea borer *Lithophaga* sp. juvenis

Black Murex - *M. radix nigritus*

Tegula

Limpets

68 - *Oliva incrossata*, Solan. or *O. angula*, La Mouss

7 - *Turritella T. gonostoma*, Valen.

Crepidula adunca

Dosinia ponderosa
grey

See S.C. 2

Collector

Lee 0. Miles

Collection SC 39

SAN FELIPE, B.C.
Rocks at Light.

April 22nd, 1952

In SAN FELIPE, on rocks below Volcano Light, opposite
Miramar Cafe. Rocks volcanic, no sand bars, some pockets.

Specimen

- No. Collections include: *Protothaca grata*
Atrina shell.
- 29 - Limpets, blue centers. *Acmesa mesoleuca*, Menke
Crucibulum
Black Murex, in pools. *M. radix nigritus*
Hermit crabs in Black Murex shells
Crepidula nivea!
- 83-84-82 - *Heterodonax bimaculatus*, Lin. Ant's color. On all esp. coast.

Collector
Lee O. Miles

Collections SC 40

SAN FELIPE, B.C.
N. of 1st N. Peak.

April 23rd and 24th, 1952.

In small cove north of first north peak north of SAN FELIPE,
at end of dirt road passing camps along shore at north end of town.
Sand dunes merge into upper beach, not as steep as usual on
this shore; the upper sand and gravel beach with boulder (granitic)
fields sloping down gradually to sand bar and adjacent lagoon;
some shallow silt in this lagoon.

- 31 Collections include: *Crepidula incurva*, Brod.
Balanus
Oysters, few.
Black Murex *M. radix nigritus*
Conus, with silt, as usual. *C. regularis*
Limpets *Acmesa mesoleuca*, Menke
Margarites
- 3 - Polinices, plain, brown. *P. rosalyana*, Sashy
~~Protothaca~~ sp. *Chione - Venus pulchra*
Petricola
Barnacles, red.
- 19 - *Tegeula rugosa*, a. Adams
Protothaca grata
Cardium procerum
Keyhole Limpet. *Diodora inaequalis*, Sbr
Acmesa Spindle.

Collector,
Lee O. Miles

Collection SC 41

SAN FELIPE, B.C.
Punta Diggs, S.

April 25th, 1952

At SAND POINT south of PUNTA DIGGS, on sand bars reaching east and north, with slight curve back toward shore, with intervening lagoons shallow and without silt except in occasional shallow patches.

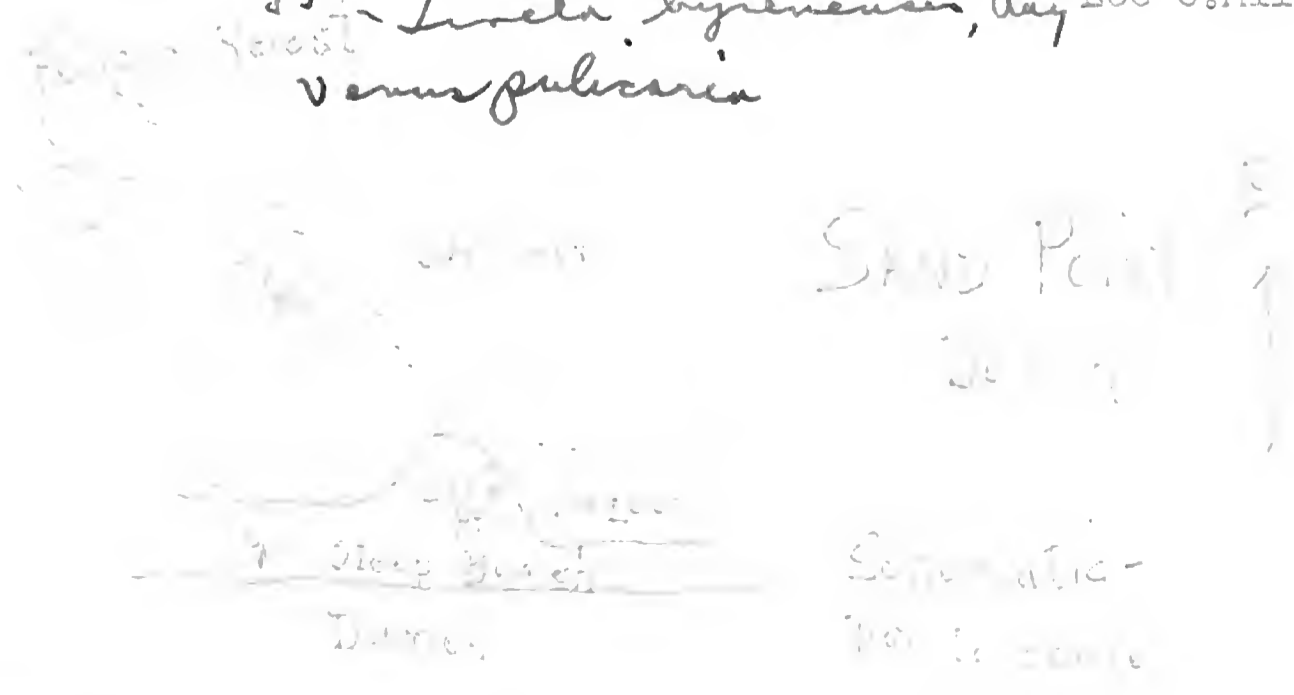
The end of the bars where pelicans roost during low tide is over 2 miles from shore.

The inner beach is about 75 feet wide, 20 degree slope.

See also SC 20, 21, 23, 28, 41.

Specimens
no.

- Collections include: *Neosimnia inflexa* *Neosimnia inflexa*, Sby
- 63 - Conus
Olive *incrosata*, Solan. or *O. angula*, Solman
 - Olivella *dama*, *musci*
 - 4 - Polinices, ~~grey~~ *Natica bifasciata* - grey.
 - #3 - " plain brown. *P. reclusiana*, Deshayes
 - 4 - " banded grey *Natica fasciata* - grey *chemnitzii*, Pfeiffer
 - #5 - " white, small *P. ulter* - Valen.
 - Donax *navalicula*
 - Crabs
 - Sea Squirts
 - 61 - Scotch Bonnet, shell only. *Cassia centroquadrata*, Solan.
 - Ehsis
 - Pink Murex
 - Black Murex *M. radix nigritus*
 - Turritella
 - 64 - *Laevicardium elatum*, Sby. Giant yellow Cocker.
 - Sponge
 - Gorgonia, white
 - Aphrodite, sea mouse; in sand, burrows like Olive.
 - Spider crab
 - 32 - Crucibulum shells *C. spinosum*, Sby
 - Hydroids
 - 13 - *Bulla gouldiana*, Pils.
 - Turricula maculosa* Collector
 - Pecten volva*
 - Trocha byrenensis*, Ray Lee 0. Miles
 - Venus pulicaria*



April 26th, 1952

From camp at Waterhole and corral in ARROYO ESTRELLA east of Sulphur Mines and 23 miles south of SAN FELIPE, south along beach for about 5 miles, nearly to PUNTA SAN FERMIN. Fore shore usual steep sand and gravel beach, narrow. Bars alternate with lagoons and tidal run-offs, and in patches, contain some clay and silt. Many rather extensive boulder fields reach from the steep foreshore out to Zone 4, low tide, and beyond. Many of these fields are either being newly uncovered, or newly covered by sand; perhaps both.

Specimen
no.

- Collections include: *Tegulus globularis*, Corp.
 Sea Urchins, fine long spines, purple.
 " " Heavy spines, greenish. *Encidarina thomasi*, Vol.
 Sponge, red, in Zone 2 (Balanus), in beds.
 Bryozoa, red
 Coralline hydroid, purple.
 Trivia shell. *J. solanderi*, Gray
 Spindles - *D. solanderi*, Gray
 Conus regularis *Keyfontii* Dall
Oliva incrossata, Solen. or *O. angula*, Lamarck.
 Olivella *dama*, name
 3 Polinices, plain brown *P. reclusiana* *Sib. Deaneke*
 6 " Grey *N. chemnitzii* Pfeiffer
 # 5 " White, small - *P. seber*, Valen.
 50 - Clam, small brown, like *Pismo* *byrenensis* Ray
 60 - *Dosinia* sp. *gondwanica*, Gray (Carcass of 10' shark)
 Donax
 Strombus *pagillus* *S. gracilis* Whale skeleton
 " *elatus* shell. Discs from backbone of PORPOISE
 9 - Turritella *T. gonostoma*, Valen.
 12 - Pteria sterna, Gould Disc from Whale?
 Thais, large orange aperture. *Acanthina*
 Atrina, rough.
 13 - Bulla shells *gouldiana*, Pils.
 Crabs, Z 3
 Fiddler crabs, Z 1 and Splash Zone.
 Aletus?
 Starfish, like *Henricia* a bit.
 Spider crab, small
 ALGAE, small, bottom of boulders.
 Murex *radix nigritus* Collector

22. *Terebra* c/f *T. variegata*, Gray. Lee 0. Miles
Pecten
Conus
Turbo *byrenensis*

April 24, 1952

From ARROYO ESTRELLA, collected north over 2 miles along beach to opposite mouth of SAND BAY, mostly on first bar out. Bars run north parallel to the coast, are of nearly pure sand, hard packed, without any boulders or silt. Fully exposed to all winds on the Gulf. The fore shore is steep, as usual, and the storm bench above it is wider than usual. No alluvial cliffs, but sand dunes covered with sparse brush are above the storm mark. As near SAND BAY, the bars and lagoons bend N.E. away from the shore.

Collections include:

In first lagoon below steep fore shore:

Specimen

Sand Dollars, green circular keyhole, juvenile.
" " brown, arrow shape, " juvenile, size 10¢ to 25¢.

On sand bars off shore:

- Olivella *dome*, *nove*
- #2 - - Strombus ~~pugilis~~ kicking out of sand near mid-bar. *S. gracilior* Sby.
- Oliva *incrossata*, Solen. or *O. angula*, LaMurek.
- Donax
- Clam, brown, Pismo-like. *Finea byrenensis*, Ray
- Crabs, mottled, chunky; squirt.
- 9 - Turritella, in hard sand. *T. gonostoma*, Valen
- Cerithidium
- Jack knife clam; move along surface 12" to 14", then dig in.
- Black Murex; covered with Algae and Hydroids. *M. ruber nigritus*
- Limpets, white, conical, attached to bottoms of old shells or sand dollars, which they lift off sand.
- Star Fish, sand type, fragile.
- 8 - Conus ~~regalis~~ *Ximenesis* ~~gray~~ in hard sand, apex down, canal just out.
- Sailor's Ear, valve only.
- Pteria sterna, Wing Shell.
- Pecten shells
- Hydroids
- Crabs, swimming.
- Rope Compound Ascidea, long ropes, with nodes, not attached.

ALGAE

Collector

- 60 - *Spiral murex*
M. recurvirostris lindus,
Cary. Lee O. Miles
- 58 - Scotch Bonnet - *Cassia centroquadrata*, Valen.
- 61 - Fig shell, Purple - *Ficus ventricosa*, Sby.
- *Macoma pacis*, Pils. Small white clam.
- Crucibulum spinosum*, Sby

Collection SC 44

SAN FELIPE, B.C.
N. of 1st N. Mt.

April 29th, 1952

Near SAN FELIPE, north of the first north mountain;
Boulder field, in Zones 1, 2 and upper 3. Boulders almost
entirely granitic, well worn and rounded.

Collections include:

- 16 - *Anachis varia*, Sby.
- 69 - Barnacles - *Balanus cariosus*, Pallas (Rogers, 695.)
- 30 - *Crepidula* cf. *C. perforans*, Valen.
Black Murex - *Murex radix nigritus*
- Oliva incrossata*, Solen. or *O. angula*, Lamarck.
- Solenostoma pallida*
- Chitons } *Chiton virgulatus* Sby (5)
- "
- "
- "
- Limpets
- "
- 44 - Clam, bent? nose, heavy shell. *Semele striosa*, C.B. Adams
- Crucibulum spinosum*, Sby
- Amphissa versicolor*
- Button shell
- Tegula J. rugosa*. C. Adams

From Senor Avalos, shells only: ~~See SC 43.~~

- 60 Murex, spider *M. recurvatus lividus* Carp.
- 61 *Ficus ventricosus*, Sby.
- 58 Scotch Bonnet. *Cassia centroquadrata*, Valen.

Collector

Lee O. Miles

SC 45

84

San Felipe

7 Oct '54

Donated by "Lipe & Herman".
Deep scallop, flat top.
Melampus - fine spec.
Brown Coral - *Balanophylla*?

Donated by Dennis Arakawa.
2 dried flat corals?

Collected - On N. sandy beach, Zone 4 to storm
line, beach specimens - Station "B"

Keyhole Arrow deep dollars - many
Mussel
Protothaca grata

Gorgonid - red.

In on new dirt road to Stand & semicobias at cliff top.
About stn "B". Worked North 1 1/2 miles.

SC 46
San Felipe

8 Oct '54

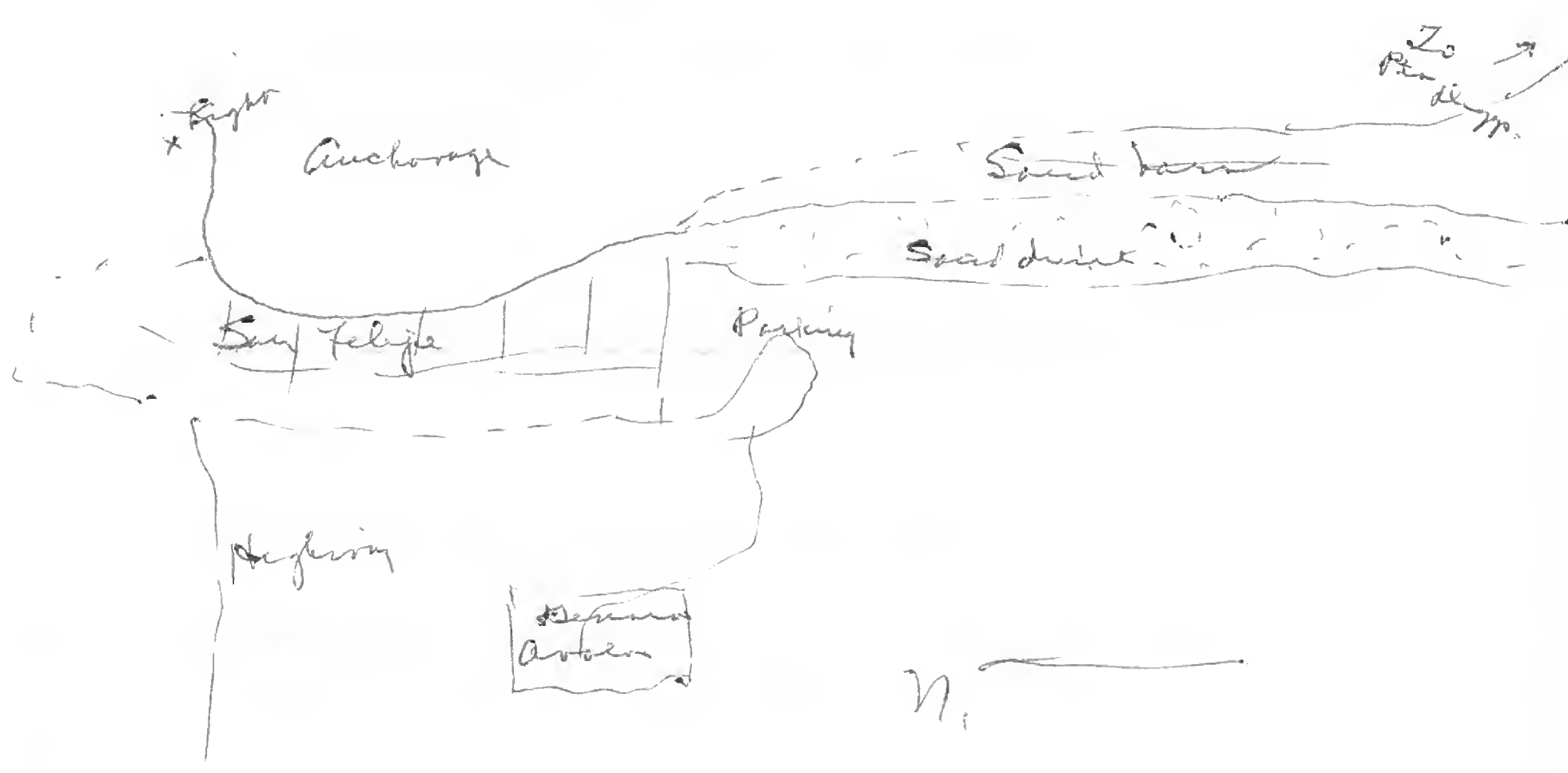
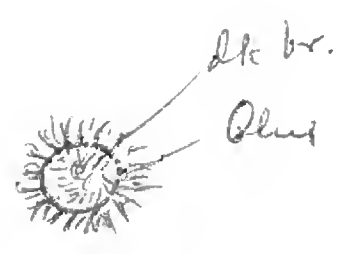
On sand bar S. of San Felipe Anchorage - to about 1 1/2 miles south. Tide not really low. Found 3 at best.

Live specimens

- Oliva
- Olivella
- Nassarius
- Centrida
- Gray notica.

Natica chernitzki,

"Anemone", floating, no stalk.



SC 47

86

San Felipe

9 Oct 54

On sand-silt bars N. of San Felipe Mts.
At beach "B" toward "C"

In boulder fields, then beyond s. sand bars
with silt areas 50% of area, esp. in lagoons.

Collected.

In boulder field -

Black Murex, med. large + clean, abundant.

Many Cucubula, Protothaca, Tegula, etc.

Murex

Protothaca

Tegula

Asteria mexicana - no *A. corteziana* observed.

On sand -

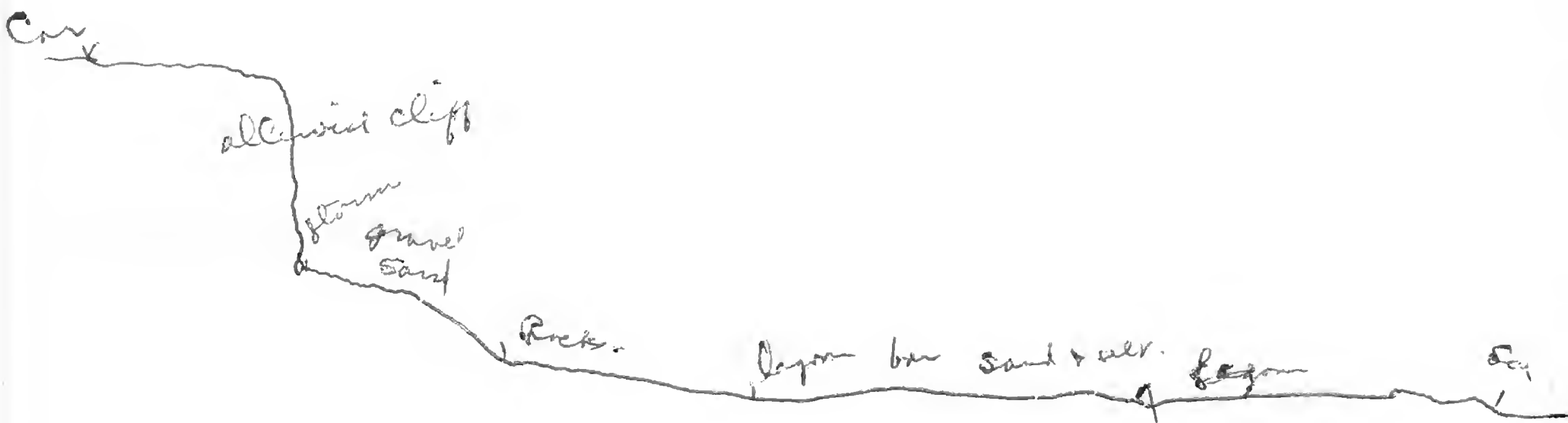
Turbo

Bl. murex

Oliva - brown

Oliva dorsa

Cross section



SC 48

57

Sau Felipe -

10 Oct 54

South of Sau Felipe anchorage, just out from
Dyke Bank, driving to adobe pits.

Sand bars, occasional very small spots of silt.
Regions clean!

Collected -

Oliva

Olivella

Livella

Other pileocyprids

Speckled snail. *Cerithidia*?

Ch. stercor. muscum?

Nassarius leucops?

Son Felipe

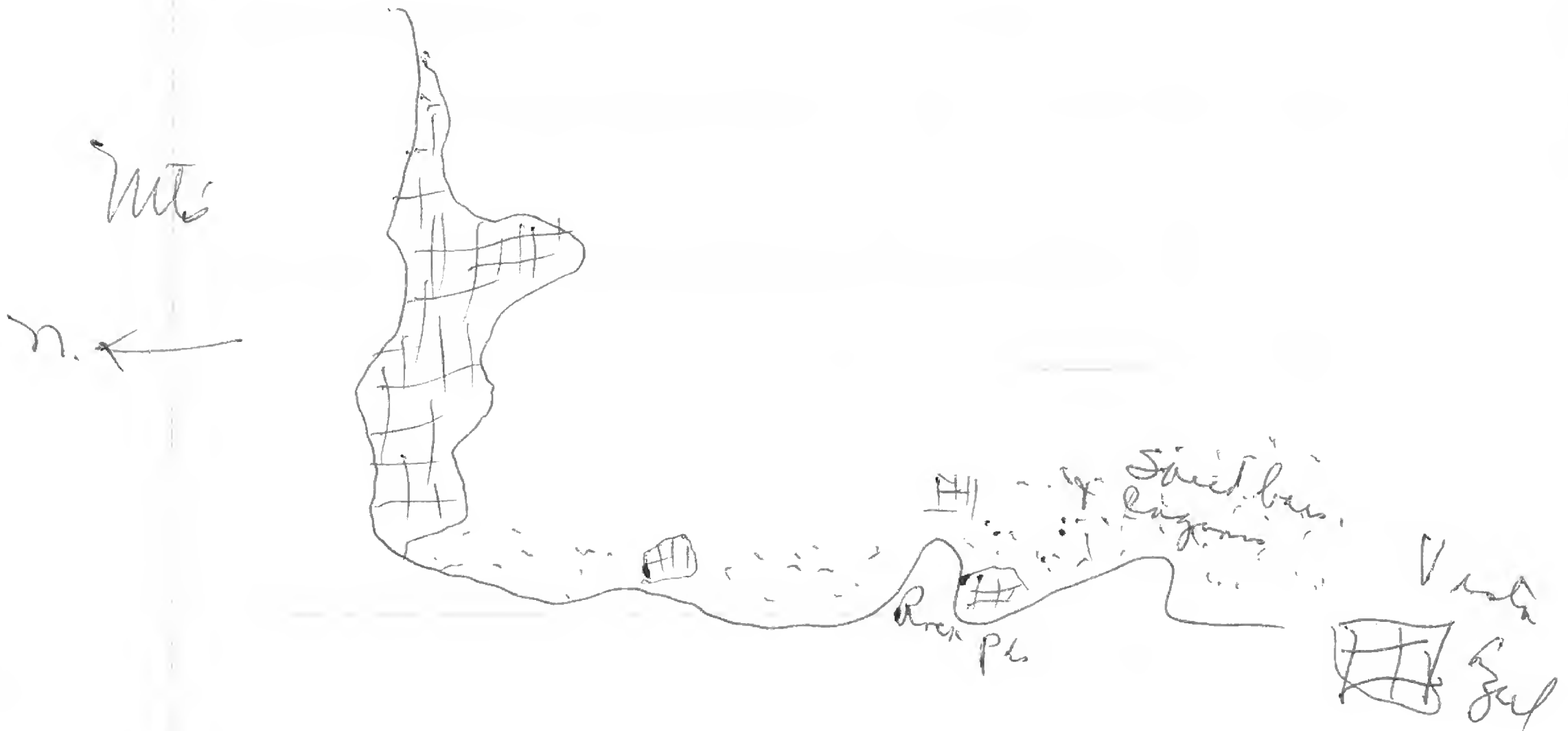
11 Oct 54

Collected just north of Vista Azul, on
Rock field - boulders to coarse gravel.
Sand bars, little silt.

Collected:

- Oliva
- Olivella
- Speckled am. gastropod
- Livella

Note - unable locate any Fancy shells, even on bar
where found so many in Feb 53.



Son Felipe -

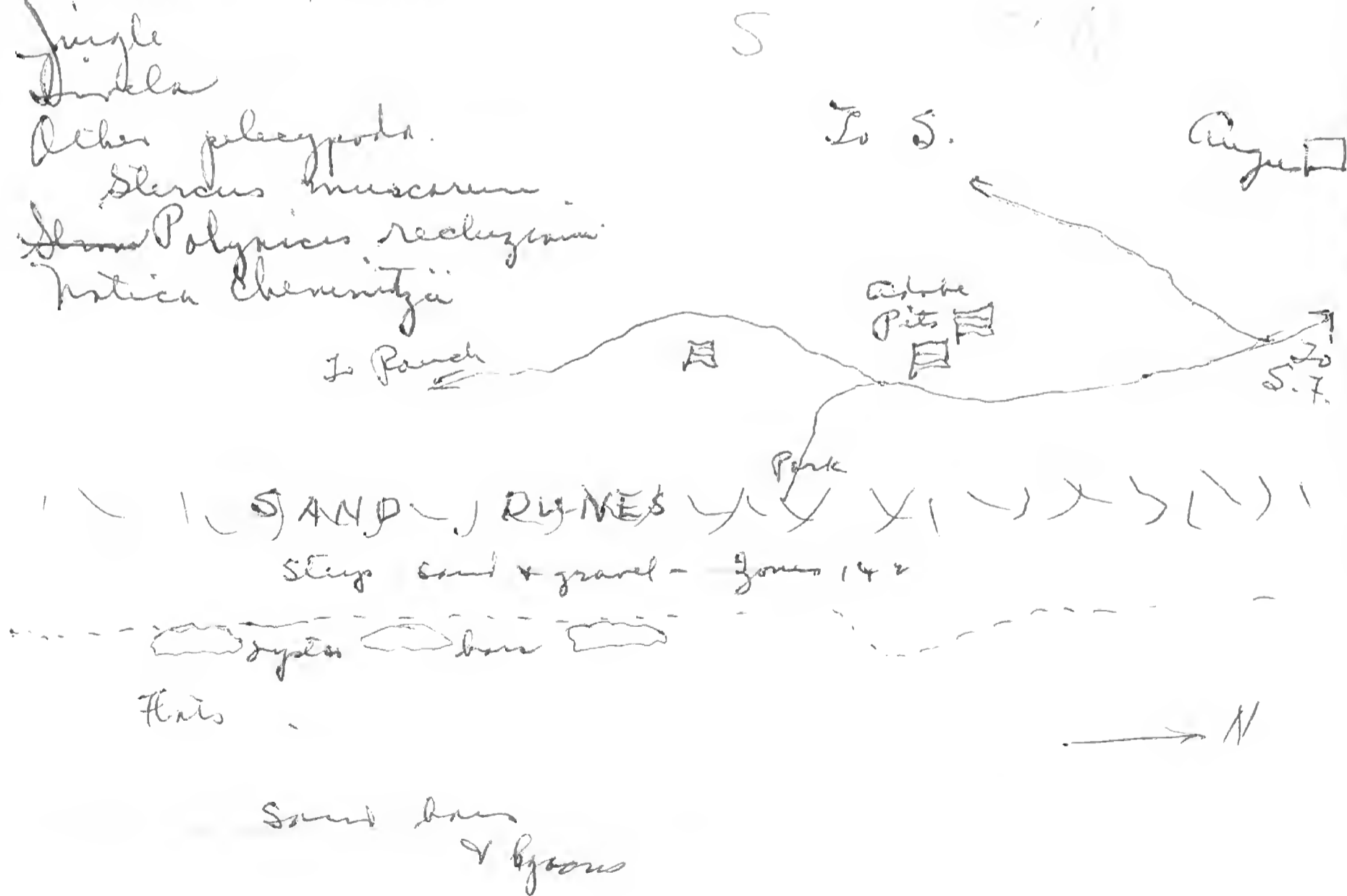
12 Oct 54

Collected just near dusk, outside lagoon bars, tide still going out.

An sandy substrate & in some lagoons as SC48. Shells beginning to move in sand, with consequent slight disturbance of surface - but flashlight too concentrated a beam, and collection rather meager.

Collected:

- Oliva
- Uvella gata
- Tossarula
- Astraea mexicana
- Jugla
- Divala
- Other pelecypoda.
- Stercus muscorum
- Polynices reclusianus
- Patina Chemnitzii



Paint Dept.

July.

Handwritten text, possibly a signature or name, written vertically on the right edge of the page.

90

Gu 1

21 Nov 1953

Guaymas

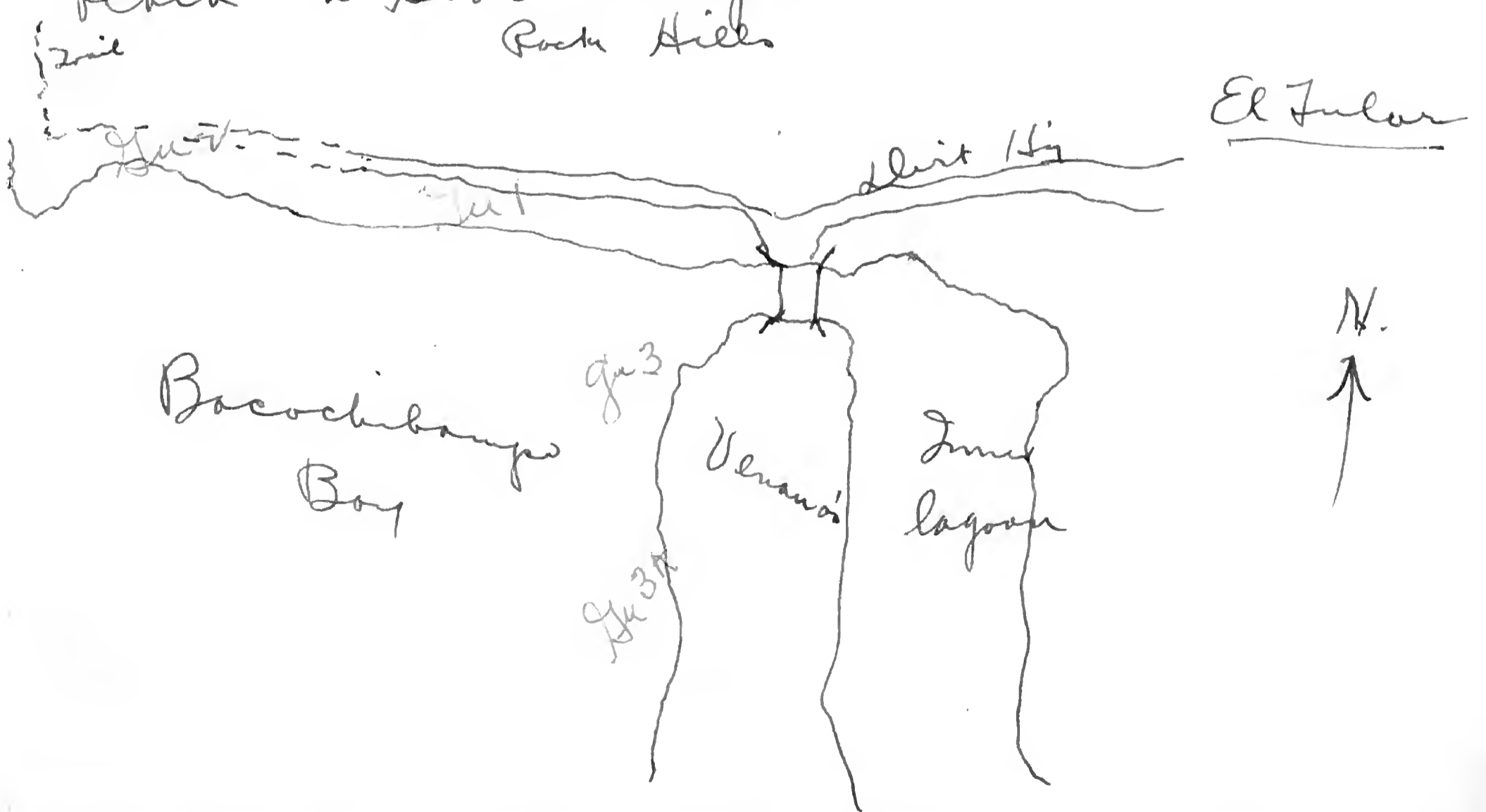
N. shore of Bacochibampo Bay -
from Inlet or N. end of spit, beyond
Venano's Place (Trailer Park) across bridge
over Inlet to Inner Lagoon.

Severely protected outer shore, open
to sea but protected on north & partially
from South.

Boulders on rocks, volcanic, porous.

Little sand.

Little surf; when surf heavy, hits
beach a side swipe.



Isu 2.

22 Nov. '53

Guaymas

Bacochibampo Bay, n. shore.

Same as in Isu 1, but collected further out along shore to rocky point where bay becomes open gulf.

Turning rocks; and in crevices.

Collected of note, 2"-3" brown cowries
Knobby star fish

Isu 3 & 3A

Nov 21 to 29 inclusive

Guaymas

Beach, bay, at Venancio.

Isu 3 - on flat sandy beach south from Inlet.

Isu 3a - on & under cobbles just S of Inlet, at Venancio.

Beach here is wide at low tide; can wade out 100 yards to waist depth. Bottom sand to gravel to small cobbles.

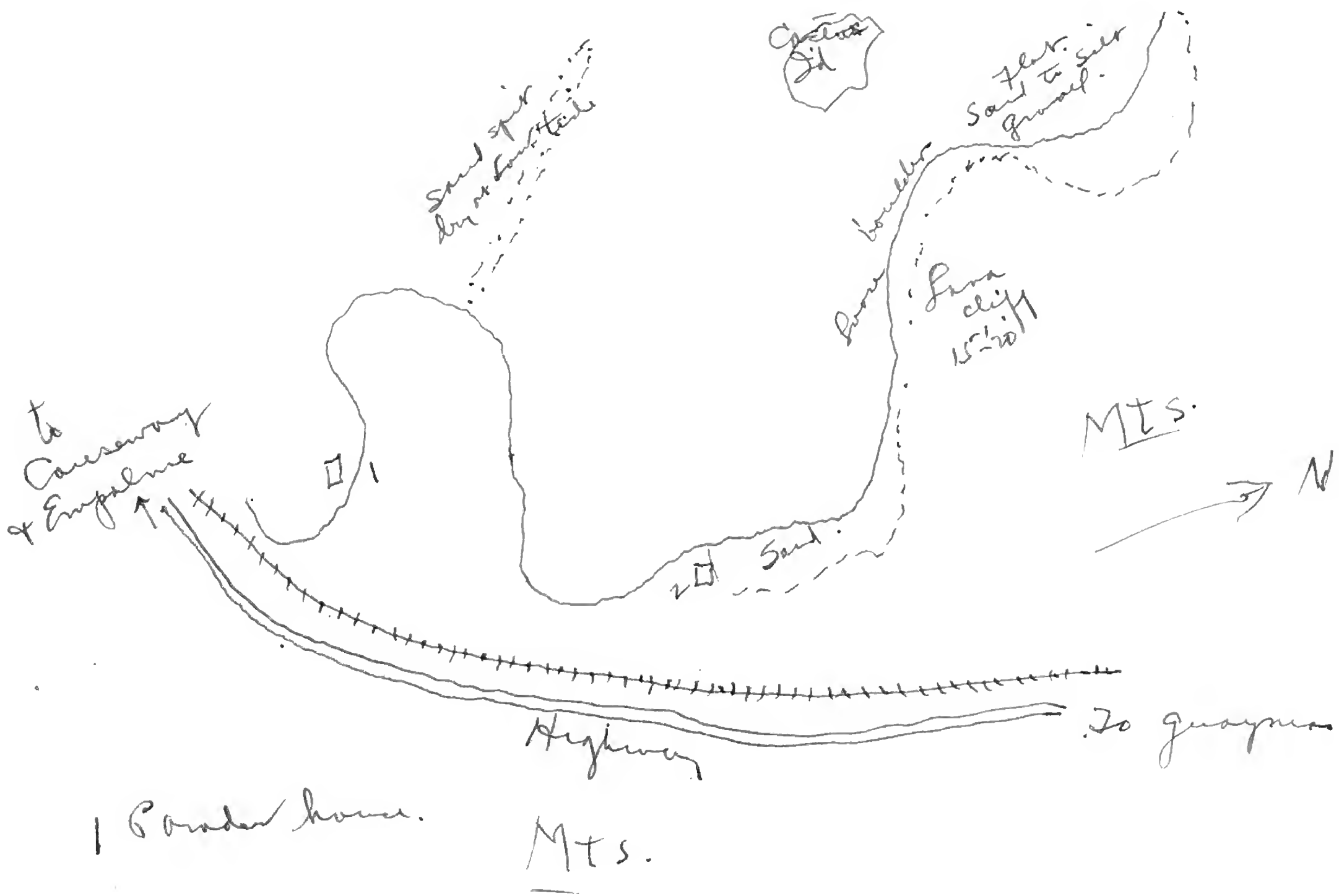
Jan 4

92

23 Nov. '53

Batucos -
Guaymas area

South of Guaymas, cross RR tracks and
down to silt flat near Cafeteria - follow
beach toward town.



Much silt.

Loose boulders on lava red rock - down
to pure silt & sand flats with areas of
cobble & boulders

Isu 5

24 Nov 53

Batuecas
(Guaymas)
area

Same as Isu 4, but further in both directions.

Collected of note - brown cowries to 3".
Cyprina annettae - Koll.

Zone 1, including splash zone. Black.

Z. 2 - boulders and or sand.

Z. 3 - Flats, sand & silt, about 50-50

Z. 4 - Mud flats, some sand.

Large boulders 4"-14" in varying units, throughout all 4 zones.

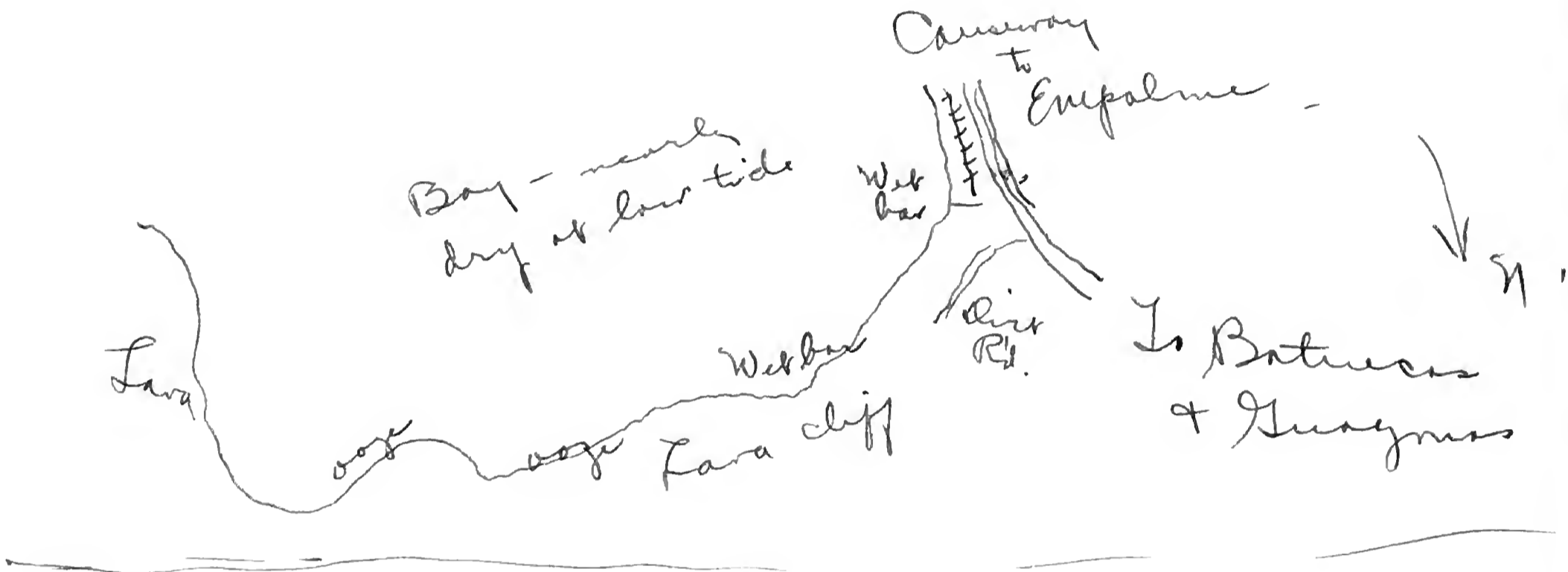
Mar 6

94

25 Nov. '53

Batuecas
(Guaymas area)

From N. end of Enzalme - Guaymas Causeway,
in towards Old Enzalme - easterly.



Mar 7

26 Nov. '53

Bacochicampo,
(Guaymas area)

From Venano's along N. shore of Bacoch.
Bay around point to rocky shores
facing open gulf. Rocky points (lava)
form small sandy coves. 2-4 miles from
Venano's, towards Soldada Bay.

Cobbles + boulders on lava bed rock.
In coves, some sand + gravel with above.
No good tide - Jones' 1 + 2 only.

Dec 8

27 Nov. '53

Bacochibampo
(Guaymas area)

Venano's Place, mud + sand flats in
Inner Lagoon.

Good collecting, but smelly.

Dec 9. A+B

12 & 13 Dec. '53

Bacochibampo

A At Venano's Place -
Sand beach with cobbles, ocean side
of spit at Venano's.

B At Venano's Place
Lagoon side of spit - Sand flats
with silt in some areas.

Tu 10

96

14 Dec. '53

See Tu 4-5-6

Batuecas
(Guaymas area)

at Batuecas S. of Guaymas, N. of Empalme
causeway.

Sand flats, some 18" boulders, cobbles in
spots, silted heavily in other areas.

Noted - Shrimp commenced in Atrina

Tu 11

15 Dec. '53

See Tu 8-9 etc.

Bacochibampo

at Veneno's, on bars S. side of Inlet to
lagoon.

Pure sand - some areas cobbles, others with
gravel and broken shell.

Dec 12 A & B

16 Dec. '53

Soldado Bay
(Guzaymas area)

At Soldier Bay (Soldado) north along coast from Venancio (Bacochibampo) reached by car on dirt "road".

A At east or inner end of main lagoon -
Sand bar, with some silt in spots,
cut at low tide by run-off channels.

B. East end of bay, lava rocks with lava mud
bank - small point S. of main lagoon.

Creamy gorgonids here, with creamy

Dec 13

17 Dec. '53

Soldado Bay

On clean sand bars at Inlet to bay, on
ocean side. Some areas of lava cobbles and
boulders. Exposed at 0.0 tide.

Collected at low tide.

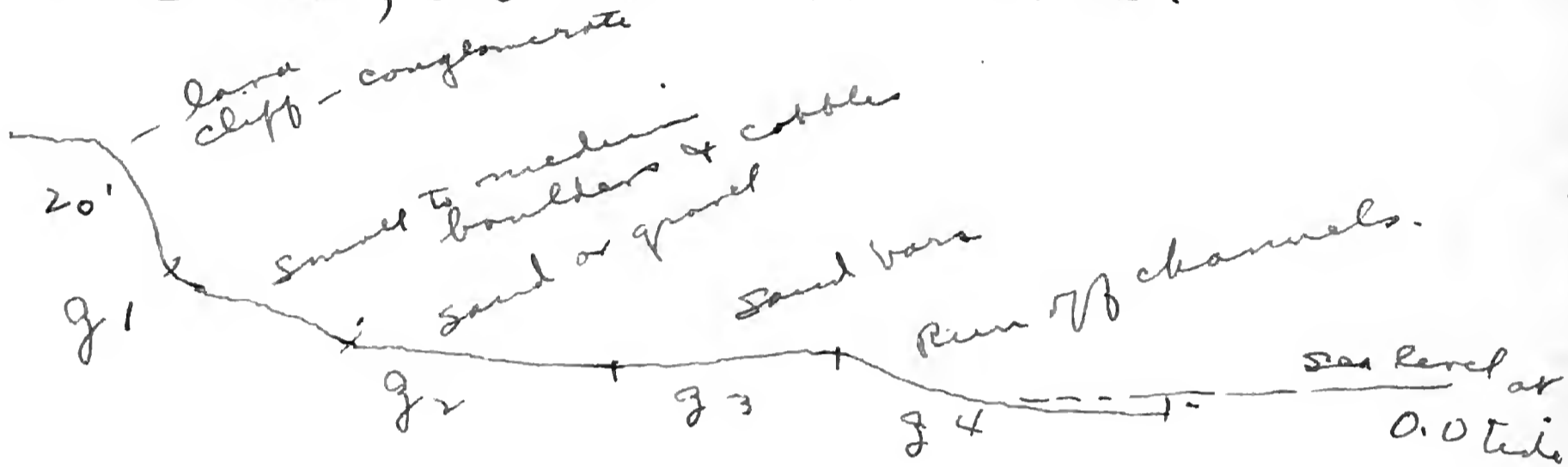
Dec 14

18 Dec. 53

Soldado Bay
(Guaymas area)

S. of Soldado Bay Inlet, on open coast
fully exposed to Gulf.

Lava cobbles and boulders, with fine
sand in coves, on lava bed rock.



Dec 15

19 Dec. 53

See Dec 13

Soldado Bay

From sand bar at entrance, thro lagoons
& silted sand bars to "Island" in main lagoon.

(with Ewing)

Dec 16

20 Dec. 53

El Cochovi
(S. of Guaymas)

El Cochovi beach resorts - S. of Empalme about 2 miles
N concrete Δ, take dirt (graded) road at right, several
miles direct to open beach and Pavilions.

Beach wide, 50'-100', clean & hard. Jones 3rd
drop off quickly.
Of note - *Pitar lupanarea*.

Dec 17

21 - Dec - '53

Bacochibampo
(" Causeway, S.)

On "causeway" near point south end of
Bacochibampo Bay, west of Playa Cortez.

Cobbles & boulders on bed rock, of 3 & 4 with
fine sand & gravel.

Note - *Strombus galatea*.

Dec 18

22 Dec. '53

Soldado Bay
(Guaymas
area)

Soldado Bay - from Inlet, on into lagoon.

A - Just opposite (inside) Inlet camp area
Sand, little silt, not exposed to sea, dry
at low tide.

B. Sand bars outside Inlet, exposed to sea,
dry at low tide.

C. On mangroves in lagoons. Silt on
& in sand,

Thu 19

also 1952

Guaymas, Sonora.

16 Oct, '54

18 Oct '54

Shells purchased from "Heinicke's" & others
for sale there - flat price of 1 peso each regardless
of rarity, size or condition.

Murex brassica -

M. rody (~~not purchased~~)

Cymatium ?

M. erythrostroma - quick.

M. - spring.

Liton? May be northern northern,

Imm shells, half grown.

Strombus gracilior -

Ficus sp - not bought.

Cassis - scotch banded.

Trinitella gonostoma " " "

Melampus

Oliva (spicata)

Sea horses.

Shells collected, mostly on beaches - from 20 mi
north of Guaymas, to Puerto Vallarta.

Coral at San Blas
Pearl shells " "

Jan 20 -

Oct. 19, '54

to 12/9 -

Various dates -

Picked up at high water mark on Venano's Beach.

Protothoa grata

Strombus

Knobby.

Strombus gracilis (4 specimens)

Oliva

Asteris

Anomia

Turritella gonostoma

Calliostoma

Chione

Protothoa grata

Olivella davis

Conus - small, lined

Pezinia

Algae.

Calliostoma japonicum - 12/9.

Dec 21

20 Oct '54

Soldado Bay, upper storm windows, etc, at S. of Islet.

Section
Chama with
Limpet.
- Horse hoof.

Conus -

Conus

Protodaca gale

Bores in Chama.

Arca -

Turbo

Cucubula spumosa

Cucubula - ridge

Bulla

Murex - small

Acrot - brown

Purpura

Chama

Alia, in g. 2 - on boulders.

Nerita - sm, black spotted

Tegula - } red

Tegula. } green

Alia, in g 3, in sand inside Islet.

Strombus gascensis.

See white Alia.

Gu 22

21 Oct 54
22 Oct 54

Inlet at So. Bay.

On bars at & outside Inlet.

On flats inside Lagoon, along drainways
and slope side mangroves.

Corbicula (C. sp.)

Murex - pink

Murex - black

Comes - C. ximenes gray

Natica chemnitzii - many

Melampus - mostly small sized.

Proxipha

White clam - cotakia

Chione

Royal clam. Anomalocardia

Twyla

Thin brown clam. Myaptiloma squarrosa

Architectonica nobilis Roediger

Pink murex

Black "

Probs, large

" on red

" slender

" minute

Rosaria

Turbo

Serolis - gracilis

"

Pearl

Argopecten

Trovan

Hyas

subretus

Cornu

Thu 23. ✓

23 Oct 54

An Island off Soldado Bay. Rocky shore with cliffs rising from High tide mark. Some "shingle" in narrow coves & off N.E. corner.

Collection mostly in zone 2 & 3, some 1.

- White littorine
- nerita - sm. black
- nerita - toothed.
- Tegula.

Shells -

- Orange pink cone
- Rock cone
- Sm. purple inside cone.
- Strombus galates
- " gracilior
- " granulata
- Pecten - long paw
- Pecten - circularis
- Turbo
- Astraea
- Acmaea - knobby
- Arca solida
- Arca -
- ovata
- Crucibulum
- Thais tricornis Blainville

- Star fish - 20 rays.
- " " - 5 "
- " " - sm, 5 "

Over

Jun 23 ✓

Love

Aron Solida

Aconna

Conus (leg)

Astrac - sm

Merita (low)

Acanthium (leg) (very th.) Merita

Mar? ? sm

Cerithium - nodulosa (Kern)

P. ram - sm

Aron (very)

50 Conus mini

50 P. ram major

Thais verticalis Blainville

Turbo (all) (small) flucosum

Cerithium (sm) 1 unit

Tequila - sm?

Sm. quatu

Fucosus - sm

Pepalium

Dec 24 ✓

25th Oct 54

El Cochovi - sandy beach, open to sea gulf,
several miles S. of Guaymas harbor.

Part clean sand, some low dunes landward

Tide not minus, so no live Pteris.

R.

Live -

Turritella.

Heterodomas

Donax

Notica chemnitzii.

Pelocypus

Crabs - burrows at high tide mark.

Architectonina

Tridacna

Shells - Pecten circularis.

Pecten - dup.

Heterodomas

Arca

Turritella

Flus with clam -

Codakia

Chione

Cardium

Carista

Sailors ear

Tridacna

Black mussel

Pink mussel

Helmet (Scot's Bonnet)

Murex - spiny

Bulla

Architectonina

Cerithium

Frigit

Crep. nivalis - wh.

Crucibulum spin. - 1 other

Polynian reclusianus

Laevicardium

Isle 25

107

Guaymas, Sonora

26 Oct. 54

Venano's - opposite Cape Bar. Sandy beach submerged into very shallow water & remains hard sand with scattered cobbles.

Took -

Gorgonids - short, red.  On and to cobbles.

Neosimnia - same dark red as gorgonids on which found. Small to medium.

Olivella dama, adhering to gorgonids.

Thu 26

Guaymas.

27 Oct 54

At El Cochoni. South on broad (150') sandy beach of hard packed sand. narrow storm belt. low dunes and/or narrow lagoons beyond dunes.

✓ Live: Turritella

Agaricus

Tivola

Crepidula (white, flat)

Crepidula, hooked, inv.

Donax

Heterodonax

Bl. Murex

Shells only:

Turritella gon.

Heterodonax

Donax

Strombus gracilis

Deep pecten

Pecten (circulani)

Cochlea

Chione - ruffel

Small spiny murex, long neck.

Pitar - thorny

Cornu

Black murex

Laevicardium

Architectonia

Conus

Pholid?

Crucibulum apertum

Crucibulum

Cerithium

Jugli - small

Bulla - large

Murex - flanged

Other one. gastropod

Jan 27 ✓

Guaymas.

28 October '54

Bocobocanga, from Dulce bridge, west on rocks & boulders of coast to point. Little sand, some gravel. Solid rock in areas.

Five:

- Cowie
- Astraea, sm.
- Acanthina, lye, orange.
- Verita - toothed
- Arca, med, wedge shaped.
- Cerithium - lye, knobby
- Turbo - plentiful
- Comus - 2
- Pyrene.

Crabs - 2 sp.

- 5 rayed stars
- 20 rayed stars
- 1 small knobby (5), brown.

Shells

- Architectonica
- Pecten circ
- " dup
- Tridacna elata
- Oliva opicata (dark)
- Rosaria
- Chama - purple
- 4" Chama, pink margin
- Chama, large, purple rimmed
- Pterodonta
- Turritella
- Strombus gracilis
- Crepidula (wood)
- " - ruga

Comus sp.
 Junco
 Ph. red

Gu 28

Guaymas

29 Oct. 54

Inlet S of Black Point, some half mi. west of Miramar. Cobbles + solid rock, some sand, much gravel, in Inlet facing SW.

Algae -

Conus - lg, striped.

Conus, small, ..

Strombus galathea - im. yellowish brown

Nerita, lobed

Tegula, large

Acanthina

Murex, erythronotus

Turbo - large, clear spec.

Cerithium, large, knob.

Pyrene

Arca solida

Chama ? im.

Acmaea, knobby.

Crab - ~~Merulius~~
Hermit

Ala [Adaptychus] cornuta (Stimpson)

Star fish 20 ray
5 ray, pm, smooth
5 .. lg, ..

Algae - coralline
others.



Dec 29 ✓

Guaymas

31 Oct 54

at Batuecas, S. of Mazatlán Guaymas but
N. of Causeway.

Silt, mud, sand, gravel & some boulders.
Sewage at places. Cobbles plentiful.

- Calliostoma
- Tegula (sm, chert, red)
- Cerithium caly.

Alveolatus (large shell)

Detusa corteziensis
Crucibulum spinosum

Chione?
Papyra - eye
Papyra - sm.
Turbo.

Crepidula oye?
Acmaea
Lipula longica
Cerithium knobbs
Perna
Cerithium
on above.
Tridacna
Thais - flat end
Solmarina
Inusculum

Slab pencil sea urchins

Ghost shrimp

Shells.

- Turridae
- Eye Peck
- cone
- Top shell (Calliostoma)
- Nuxes -
- Strabus gracilis
- Sanctus magallanica Swainson "Pencil eye"

July 30 ✓

6-7 Dec SW

Nearshore

On sand bars some cobbles, at Lule...
Dunbar's (Cidos Escudante) air xanthide.
Sponges amongst cobbles.

Zoozoo

- Alve - Notice - grey. (Chrom.)
- Black murel
- Cross - variegated?
- Cross - small, light.
- Alve - brown
- Alve - speckled?
- Alve - dense
- Delin. alve
- Cardium
- Tridacna
- Arca
- Sponges fusca?
- Chione
- Crabapple (bryoz?)

- Cruc. Sponges
- Solenastrea pallida
- Polysiphonia

Shells

- Strombus strombus
- Strombus gracilis
- Protolichas grisea
- Lygia
- Alvora
- Crepidula - brown
- Jackknife (rosaceum?)
- Pecten
- Alchis
- Callinectes
- Alvora
- Chione
- Callinectes

Coralline - ss.

Fungus shell - valve

Yu 31 A

13

7 Dec 54

Batuecas

A. Long sand spit off S. point toward Empalme. Pure sand & gravel. Rather barren.

B. Among cobbles on sand & gravel, some silt in spots, opp. old smelter, west of Cabaret. Also rocky shore from Sand reef toward Empalme by P. order house

A - Squirt

Bl. closed crab

Penaeus - species

Octopus

Bl. mussel

Tellina?

Shell, turned up at Empalme. *Murex muriciformis*. BRD

Solenaster pallidus

Turritella gonostoma

Chiton

• ~~Starfish~~ *Abomalocardia subrugosa* - wood.

• *Protothaca*

• *Crepidula* - specimen - one *Logozepina* shell valve.

C. - edged -

Alone - sm

Arca - sm

Cardium - sm

Large Arca

Jack knife clam

Alivella darwin

Natica (grey) *Chenitzi*?

Nossanus

Green

Hermit Crab's

Chiton - 1/2"

Cardium - 1/2"

Dec 31 B.

B

Batucos, west.

Collected

Turritella

Acornthina. eye, orange.

Top shell, operculum, cream, sharp edge

Crucibulum, redged

C. spumosa

Dentalium - H. lineatum

Alates

Helicis, green

Ligula, green operculum

Ligula, iron

Noscomus, sm.

N., eye yellow

P. yves?

Tur. ~~spumosa~~ thin

Cardium

Anomia?

Shell, tip up near Euplexura maculosa form

Fusinus? 2"

Crithidia knobby

Chione shell

Verita & hermit

Crabs, bl. claw

" tiny

Top, brown, not operculum, Rd edge

Ligula limpet

Turbo

Crucibulum nitida?

Top area? 

Pecten

Pd. murice

Pecten shell

Eel

Comp. arcata - orange

" " silver

Stony, purple

Fish

iridula ...

Soldado Bay in Tule outside house, and
inside flats -
Pure white, occ. with cobbles.

Two Dunes - (one marked & numbered)

- Cones
- Asteria - mangrove.
- Cucum, large
- Arca
- Gorgo. from *Tronolacoidia subrugosa*
- *Hydrobia* sp.
- *Hydrobia*
- *Meuschenia*
- *Pagurus* - small
- " white *P. albus*
- *Alivata* dunn
- *Alivata* shells, small
- *Alivata* large
- *Alivata* - brown
- *A. spicosa*
- *Turbo* sp.
- *T.*, shell:
- *Tridacna*

Crab
No Bay Star

- E. -
- Algae
 - Cardium - all about noted
 - Spindle
 - Neosennia, Red
 - Bubble - large brown
 - Strombus of shells
 - S. Knobby, shell only
 - P. Must shell only
 - Neosennia, small
 - Strombus
 - Gorgonids, red.

Thu 32 v

Fungi

- Doanua - eye white, long, grey
- Pyrene
- Dobson
- Solenostera
- Licentaria - orange
- Trichia - fr.
- Corbium
- Leucocardium station
- Conia - red
- Conus - subglobose?
- Trichia - grey
- Potamon - banded
- P. ruficincta?
- Crepidula onyx?
- C. murina
- Obolus brown
- O. speciosus
- Pink mussel
- Black mussel
- Lepidula - 2 species
- Fagel clam
- Nassarius - small
- Alvella down
- Nereis - white

- Bygonia
- Sand dollar O
- W. Ray star
- periwinkle
- Per. gorgonia
- Crown "
- Star fish, 5 arms
- Shrimp
- Star

Shells

- Cinctura, eye
- Oyster
- Thin shells
- Eye flumes
- Crop + Knobby conus
- " - tiny
- In pond with clam.

9 Dec 54

San Carlos Bay

at upper end (neck) on wide sand flat, rather clean, at low tide. Silt only on west side. Sand, rather coarse, underlain at 4" by clay-colored layer of some depth. Clams stained, except shallow line. Bar exposed at minus tide. No surf at all.

Collected: Anomocardia subregosa.

For Fuchs? Megalopitaria squallida Sby

Alia spicata

Alvella domo

Polymesia - white

P. lundt.

Nereis - grey

E. home

{ Chione filled shells for eggs mounted Soldado }

{ Arca, large, " " " " }

Murex, pink, clean

Murex black clean

Two Alia, more than 100

Cerithium on mud flats, Soldado

" knobby.

Regula

Pistol Shrimp.

Astraea cortiziana

Forcella

Crepidula on coast

Small brown sponges - Euplimum muriceiformis

Bot

Very smooth Regula, red inside

and same as A & E.

Donor

Cerithium darcus - muscivora

Algae

Epiphyse

A
4
E

FCM

Thu 34

30 Oct 55

Sau Carlos Bay

Sand bar to silt to cobbles, working around outer edge - low tide - 0.7. 1/3 bar exposed.

Look: *Murex erythrostoma*

Oliva speciosa

Turritella gonostoma

Paeniacardium elatum

Melampus

Cardium

Polinices reclusianus

Vermet

Pyrene

Livina

Spindle

Crepidulum

(ridged)

Crepidula onyx

C.

Hooked.

Fissurella

Natica cherrinnyi

Conus

Conus

Eupleurum

Fegula rugosa

Margarita?

Turbo

Chione vsp.

Gu 35

119

31 Oct 1955

At Venano's Place, Guaymas

Barnacles on sea turtles.

Gu 36

31 Oct '55

San Carlos Bay.
Same site as Gu 34,

Same as Gu 34, plus:

Pecten

Black murex

Acanthina

Segula

(Red mouth)

Comus - large, white inside

" - purple inside

Pinna? Atrina

Favosites

Jul 37

1-2-55

San Carlos Bay.

Same site as Jul 34 & 36, but worked rocky beach on west, further towards inlet. Red rock lava, plus loose boulders, much algae, sponge & green coral.

Found in addition to Jul 34 & 36 -

- Crab, *isidiata*
- Starfish *perforatus* six arches
- Purple spine " "
- Nerita* 3' (yellow)
- " 9' small, black
- Courier, large 2" brown
- " small 1/4"
- Arca solida*

on to sides rocks.

ones on sand bar at dusk, roving.

Acanthina muricata

Pygmaea major
Erg (1 1/2") *Crepidula*

Acidopus, 2', escaped:
Crayfish 1/2 grown " "

Purple, silver dotted flat worms, went to grass

Rock oysters (chance -

Jun 38

122

Heinrich's

Jan 39

123

~~13~~ - 55

Soldado Bay -

Near Inlet, esp. East side.
Sand - gravel bars, some silt

Live

- Notica chemnitzii*
- Alia* - brown
- Agarvinia testacea*
- Segula* - red
- Bubble shell - large
- Dorsinia*
- Cardium procerum*
- Melongena guttata*
- Polinices tubus ruber*
- Anomalocardia*
- Strombus gracilior*
- Conus* - spotted

Shells, assorted, esp.

- Protolucina grisea*
- Trinia* - 2 species
- Purpura*

July 40

24

13-55

San Carlos Bay

Collected as previously, but got around to cove just inside Inlet on west side at "Causway". Walked across tidal flats, finding many Pink murex & Securidella? These along old road.

Loc. - "C" mean at cove - others on flats "7"

- Pink murex C7
- Conus - C.
- Oliva spicosa 7
- Slate pencil nautilus C
- Yellow star fish C
- Spring dark " " C
- Conus C
- Dolium striatum pallidum 7
- Polinices bifurcatus C. Empty for gravel.
- Chione C-7
- Polinices richardsoni 7
- Natica Chemnitzii 7
- Turritella 7
- Acanthinuccia muricata C
- Chama C
- Crucianella - ridged (imbricaria) 7 on Turritella.
- Astraea C
- Poroto 1.0 C
- Kyphos bispinosus C
- Euplexaura C
- Cerithium C
- Conus C
- Bryozoa clam. 7 (C & large)
- Pinna C
- Trop. crabs 7

- Shells - Rough white clam 2x4 C
- Round white clam, flat C
- Cardita calif. affinis C

Gorgonian
Nesomina

su 41

11-14-55

Bacochibampo - on bars at Inlet.
Sand & cobbles alternate beds.

- Conus xanensis
- Conus regularis?
- Oliva - brown
- Polinice ruber
- Oliva plicata
- Spindle

11-16-55

- Agaronia
- Natica chemnitzii
- Cardium procerum

Beach at Venau's - morning gleanings

- Strombus gracilis
- Strombus - knobby
- Bubble - large
- Deep pecten
- Prota. grata
- Red clam, tiny.
- Dosinia, sm.
- Trinia
- P. pustulata
- Mytilus
- Jackknife clam
- Architectonus
- Conus

Su 43 -

Yu #2

126

11-15-55

Soldada Bay - A Inlet bars S of inlet.
B. boulders S of above.

A. Clean sand; occ. patches of cobbles.

Cer. st. muricatum
Comus ximenes
Oliva - brown
O. plicata
Nassarius
Acanthina muricata
Turritella
Keyhole sand dollar - Mellitus
Anomia

B. On and under rocks.

Astraea
Turbo
Tegula rugosa
Purpura - small
Nerita - sm. bl.
Anomia

Corb. plicata
12 my stars.

Fossil shells from windrift

Bubble
Cer. - large
Pecten
Protolusca grata

Jan 43

11-16-55

Bocochibampo Bay, South side, rocks & bed rock. From end of road to point.

Live - *Segula rugosa*

Black pyrene

Cone - red, black stripes

Altrina - small, in crevice of $\beta 2$: growing

Frustraria

Vermetus - looked.

Thais biserialis

Crucibulum - ridged, flat. $\beta 3$

Cypraea - brown

Ipais - scrobby.

Astraea

Small gastropods, lined mouth.

So

Horse mussel, bearded.

S.O

Car. - large.

Turbo.

Crab, foliated

16 Ray star

Slate pencil urchin

Green star

sp 41

So

Crep. onyx

So

Transparent pink clam, lining

So

wh. globular clam, $\frac{1}{4}$ "

July 14

128

11. 24. 55'

San Carlos Bay.

A - Turritella Flats - sand, gravel & a bit of silt.
- upper bay, west.

A Turritella in abundance, in groups, partly buried
Pink Murex - on shore.

Brown sn. clams

Ridge clam like Proto.

Conus - red lined.

Oliva spicata

B. Cove west near causeway. Some silt on gravel,
some loose boulders, some bed rock (lava)

Solenostoma

Carditameria

Prot. oyster - clams

Banded mussel - bifasciata

Proto - grola

Olivella dama

Crep. oyster

Wh. clam, shaped like Neritina

Conus - red lined

Thais biserialis

Tequena lutea

C. Pool in cobbles, silted

Wh. clam



Jun 45

129
11-26-55

Guaymas - Euphorbia -
East of north end of causeway, on mud flats
& shore cobbles.

Oreoc. spin.

" radicata?

Eupatorium

Legum. baugosa?

Asteres med.

A. Corteziana

Conus

Sm

Cer. caecum-murum

Prot. grata

50.

Cockle - pecten

Variegated clam

Thu #6

11-27-55

Soldado Bay - Inlet & across, usual bar.

Along sand bar

Alive speckle

" - brown

Panopaea cardium procerum

Br. brown claus

Conus - speckled

Turritella

Wh. num. - ubi

Sand crabs.

Agaronia

See below

Across Inlet, bar washing

lber - large white

Pol. reclusiana

Aplys

Scotch burrel

Pinna

Anomalocardia

Dosinia

C. P. roeum Jack Knif

Along sand bar

Crab

Turris

Dec 47

11-28-55

San Carlos Bay -

A. Are unusually low tide, at dusk, & many animals popping to surface; esp. banded polinices & pink murex.

B. Open rocky coast near "conceway"

9 Pink murex

Spindle - one very large

" - small.

Oliva speciosa

Melampus - 1

Conus - purple inside

" - stripes

Atrina

Prothaca

Brown clam



B.

Atrina

Merita (toothed)

Conus

Rock crabs.

Gu 48

1324

11-29-55

El Cochovi -

below Empalme to resort - north
along sand beach at low tide, back by
dusk.

50

Pitar lupanaria

Olive . black

Strombus gracilior

Black murex

Pink murex

sc

Murex sp

Strombus

49
Jul 49

11-30-55

Soldado Beach; on bars at Inlet,
Sand, clean
" & cobbles.

- Prick nevad
- Thin brown clm
- Card. procerum
- Olive - black
- " - spicula
- Conus - spaces
- Conus - large brown
- Pol. reclusian
- " suber suber
- " biprecisus
- " ?
- Cerithium
- Pates lupensis
- Turritella
- Thin sand dollar
- Arvon " "
- Agaronia
- Long brown clam
- Trocha
- Arca grandis

- SO. Pato. gata
- " Trocha
- " Dracopis
- " Cucc. spm.

gr 50

1-4-56
1-2-56
1-3-56

Bacochubimya -

A. At Inlet to lagoon at Venanos, in rocks N. side

B. On sand bars of lagoon.

A. Black Murex

Keyhole limpets & kuids

On white gorgonid - P - small.

Thin *Artemesia* ? *A. acutissima* -

Atrina - rough.

Pedaliaria

50 { *Stomatopoda gracilior*

Borer clams

Chama

Shrimp.

Corolla - Sm, flat.

Crep. on above.

Mary snails.

50 *Stomatopoda* - knobby.

B. *Melaeocera* - large.

Wh clam O - 2-3"

Protozoa - but not P.

C. albansdosum

Wh. may live Sea Hares

Favicardium elatum.

50 *Ingalus*

Wh. clam above.

Cleaned

July 5/

1-5-56

Soldado Bay.

A. on bars at mouth of Inlet

B. " " inside (East) of mouth - opposite camp ground.

Both clean sand to some gravel - a little silt on B.

- A. Olive - brown
- " - *O. spicata*
- Ear shell -
- Area

- 50. Pelec. - var.
- Cer. or *Knipostia*?
- Papa* *marina*
- 50 *Triton* - sm.

- B. *Agarion*
- Pterocardium* *elatum* - sm. & large.
- Ear shells - esp. in shallow tide pool.
- Rough cardium
- Bulla* -
- Notia* *chem.*
- Conus* - *ximenesi*
- Cardium* *procerum*
- Melampus* - sm.
- Chione* -
- Pol.* *uber*
- Brown chitinous claws.
- Area
- Alvina* - rough

- 50. *Ingelus*

Many baby claws, asst'd.

Mouth cleaned
of animals

Gu 52

196

1-6+7-56

Sau Carlos Bay

On sand & silt flats, upper end bay
And more particularly 'at Inlet Cove
as before -

Pink murex

Cone - eye - orange

" - speckled

" - small orange re.

50 Lion paw pattern.

Proto. & similar

Brown clam.

50 Nereid-like

50 Globular, white, 1/2" - 3/4"

Large clam? - heavy like Washington clam

Knobby cerith, large.

Sm. cer. or Kneepostia

Oliva speciosa

Agaricus

Thin - flat, yellow inside

" - broad, brownish

50 Knobby strumbus

Urtica chem.

Pol. 2 stripes

50 Mytilus.

50 Calidum procerum - much red inside

50 Chama - large, wh. inside

Ostraea L on sm. rocks.

1-8-56

Soldado Bay -

A. Bars at outside of Inlet.

B. " inside Inlet

A+B Mostly sm. gravel & clean sand.

- A. Big olive
- Cone
- Cer.?
- pallida?
- Pink murex -

- B. Br. clam
- wh @ "
- Loricardis
- Key peeler
- Pink murex
- Aporosa
- Palaemon

50. Sm. brown figured clam - 5/8" diam.

1-9-56

San Carlos Bay -

A - upper flats, boulders & silt on sand.
 Erupted at H.T.

B - Cove - Covered to 3' at low tide

- A. Pink mud
 wh. moon
 Turritella
 O. spicata
 Conus -
 Luvilla dama
 Chama
 Drill - Eupluran
 Grep. orange on Tur.
 Spindles - sm.

- B. Pink mud
 50. Long many rayed Cardium
 Cone - large
 " - med, small
 50 Flat clam, pink edge
 50 Proto. type, eye
 Conus, sm. orange.
 Arca? on bottom rocks.
 50. Circulus 1" clam.
 Cir. - eye, smooth.
 Pol. & slip

Isu 55

1-10-56

San Carlos Bay -

- A - outer coast, covered west of "Causeway"
- B - same as site B - inner cove.

A - Conus - black stripe on orange

Cornu - sm., flat
" - brown bottom.

Trinia -
Pyrene major
" minor

Astraea
Thais - yellow mouth
T - 2 rows.
Acanthis patula pumila
Littorina - gray.

SD
SD area -

B - Pink mussel
Pol. - brown, yellow stripe
Conus - mottled.
" - speckled

Jan 56

4-5-56

Resynum - 7. mud flat (N beach) of lagoon
& rocks on N edge

B. Sand flats at entrance to lagoon -
Rock in lagoon - Botocobras

Mar 5-7 + 58

141

2-9-58

4-10-58

Sat. 4th Day 4 - sand bars outside lagoon
B - bars inside entrance.

Shells only -

- Armonia
- Conus - striped
- " brown
- " regular
- Chama
- Turbo
- Pink mussel
- Pecten
- Bubble - large
- Pecten type brown
- Conus
- Armonia (jagged)
- Crep. adunca
- Crep. nivalis?
- Natica - white
- " - grey beaded
- Conus red
- Anachis

- Arca
- Trochardium
- Armonia
- Armonia
- Turbo
- Strophomena
- Erycin
- Sm. rot. class., elongate
- " " " "
- Crep. adunca
- " " " "
- Pecten - dark red, flat
- Cyprina
- Red (littorinid)
- Bulla
- Cer. white
- Protothaca
- Crep. formosa
- Arca - 2 sp.

Two

- Pink mussel
- Black "
- Trochardium
- Cer. albanostrum
- Cardium
- Pecten
- Agaric
- Boxes in other shells
- Cassia
- Solenostoma pallida

- Armonia
- Armonia
- Sm. jagged, flat, etc
- Chama
- Bulla
- Alia speciosa
- Papilion
- Orange knobby
- Anachis
- Donax (red)

Hermis crabs, 2 species

July 5 '9

4-11-57

Sou Carlos Bay - N. end. Cobble on sand, blue below at various depths

Shells only -

Calliostoma
Turbo - Callispongia
Chione - fol
Oyster
Solenostoma pallida - a favorite with hermit crabs.

Chione - com
Pisina type
Turritella

River -
Tegula auriculata
Tegula rugosa
Turbo - on rocks - shallow water
Keyhole - " "
Turritella - sand.
Oyster - on rocks.
Tegula - red throat - under rocks
Comus regularis - under edge of rocks, some half buried: but in deeper water than Turbo, generally. 30 under one rock 12" x 24"
Chione - shallow
Tip nose drill - shallow water. In bunches. Erycinum.
Pisina
Pink mussel - spread on sand, 2' water
Red neck am. spindle - in bunches on & under rocks, 2' water. Fusca
Anachis
Ger. ?
Solenostoma pallida

Miri 60

4.12.57

San Carlos Bay - on outer coast at Cove near bay entrance, on lava rocks and beneath same. At low tide. Semi protected by capes N. & S.

- Live Pyrene
- Live Thais patulapansa
- Live Littorina
- Live Pyrene
- Live Nerita
- Thais


} Most specimens empty shells except for Hermit.


Large 20 may star fish

Jan 61

4-12-57

San Carlos Bay - Cove mid entrance - sand with cobbles & some silt.

- Live - Pink murex
- Large ridged clam - 6" x 4"
- Clam - striped, dark.
- Olivella
- Thais truscularis
- T. biserialis
- H. pallida
- Murex
- Turbo
- Margarita
- Cer. varium
- Flab. clam - on bottom of rocks 
- Arca solida.
- Astraea - sm. white

- Shell only - Brown cowrie
- Olivella
- Pyrene
- Clam - striped, reddish.
- " - small - var. color.
- Cowrie - med. brown.
- Porto,
- Strombus gusculis
- Perles - several
- Striped moon.
- Solenostoma? 
- Astraea - sm. wh.

~~Large murex~~

Mar '33

146
94-23-57
(over)

San ...

22
in ...

with ...

...

...

...

...

See ...

Y. C. C.

4-22-57

Comus nut

Haminaea

Phanua or pseudochan

Turbo

No. 63

4-23-57

(San Carlos Cove & Outer Beach)

- Five - Comus - striped
- Mytilus - 2 by beards in crevice outer Cove -
- Haminaea
- Kyhole limpets
- Anacis
- Cerithium
- Brown cowrie - coral
- Ostrea on rocks, S. side Cove.
- Th. bicincta
- Th. triseriata
- Brown cowrie
- Striped cowrie
- Chiton
- Tham. satula parva
- Porrene

Starfish.
Algae

El Cochoni Gu 65

148

4-24-57
On sandy flat beach n. of Chamecos Beach,
El Cochoni, south of Empalme.

(Note - hundreds of Brocero's Registering & Empalme.)

Shells only -

Architectona

Bz. murex

Bulla gouldiana

Sm. Tivela

Donax

Heterodonax

Strombus gracilis

Thin white flow, hinge like Mya.

Calyptra

Arctibul - ridged

" spinosa

Cardium

Chione - fringed

Pitar

- valves only

Turritella - 2 species?

pallida

Boreas.

Aug 66

149

North of Chamaecos Beach,
Flat, hard, clean sand -

4-26-57
El Cochovi.

Beach shells -

Strombus gracilior
Lacuna elata
Dorsina - large
Saxos Eri
Heterodont
Honor
Chione - fringed
Arca - 2 sp.
Anomia
Pecten -
Thrup pecten, flat turkey wing top
Tridacna
Crucibulum spumosa
" - ridged
Architecton
Togata
Pitar - spiny
Turritella
Murex albus
Purple umbone clam
Dark white clam
Winged oyster
Cassis
Crepidula onyx
" micra
Astraea
Bulla gouldiana
Clam - white, bent nose
Calyptina
Top shell
Turbo - like Top shell
Flat top clam - ?

Mar 67

150

- 4-30-57

Early low tide, Out on beach at dawn.

Soldado Bay - Inlet sandy bars, both sides.
05:00 - 08:00.

Alone Olive
Olivella
- pallida
Bulla gouldiana
Turritella
Purpura muricatus
Shiny brown clams
Chione
Conus regularis
Protothaca
Donax
Polinices ruber

Shell - As above, plus:
Turbo
Astron americana?
Cardium
Proto.
Arosium
Circ. spumosa
Low yellow clams
Cardium
Turbo
Pulcherrima
Bubble algae - 4" diam.

Gu 68

5-1-57

151

Ragon, Bacochibamp - in silty sand to mud.

Chione fructifera - large chione.

Murex - black.

Isu 69

Soldado Bay - ^H Bars at Inlet - sandy. 5-1-57
B - Lagoon

Five -
A

- Conus regularis
- Bulla gouldiana
- Agaronia
- Heterodonat
- Slim bent nose clam.
- Alive.
- Arca

Sea Mouse - alive

B - Conus - various, med. size

Shells only -

- Architectona
- Conus reg.
- Protoliva
- Pecten
- Paludata - (Trivia) 2 sp.
- Conc. (ridged)
- " spumosa
- Cismatippe
- Clione - small
- Trinitella
- Top shell

Jan 70

5-3-57

At Goldsboro - Cur at 10:00

4 1/2 hrs. ...
... ..
... ..

Long
... ..

Thu 71

Sun. July 11-58.

Soldado Bay

Collected on South side Inlet, from Camp
arrangement.

Very shallow water in front East point.

Live, on inside bay on sand beach at
water's edge.

A

Scallop shells
Alia spicata.

B

Shell shells

- Nautilus* - young, ~~found~~
- Pecten* - several species
- Crepidula* - " "
- Purpura* - ~~grata~~
- Alvania*
- Trinia* - 2 species
- Polinices* - ~~found~~, ~~by~~
- Hydrobia*
- Hydrobia* - ~~found~~
- Hydrobia* - ~~found~~

1-13-56

Jan 7v.

Donated by Lorenzo's wife - old clothes

Guaymas

Trivix - 2 species lined
Jovix 2 or 3 " spotted

x some good.

x " "

Cones: purple

" - lined

Murex - pink

x " "

Cyprea

x " "

Cones - small, pink

x " "

Peyre

Notica - white

New specimens, long -

Some other small.

July 73

1-15-58

Saldado

At Inlet - on clean sand bars; across Inlet on sand, some of it shallow, over silt-clay & gravel. At mouth of North lagoon in water to one foot deep; and across (E) of parking place on south side Inlet

Alive - Scotch bonnet
 Pink mussel
 Melanopsis - all cruising in shallow water, on bottom.
 Pink clam, 1" x 1/2"
 Equis
 Razor clam
 Anomia - on snog
 Cruc. spin. " "
 Clam - bronze, marked
 White natica -
 Grey "
 Agaronia
 Turb
 Teromus, knobby

Clive, large br.
 .. , specata
 Conus - lined

Dead - Archidona
 Razor clams "
 Bronze "
 Strahl, knobby
 Cruc. spin.
 " shuca.
 Alive
 Conus
 Protoboa
 Turb
 Turritella
 Cassin
 Arca
 Small white O
 " " O

June 74

1-16-58

Soldota

Same as June 73 -

got a live specimen of area.

No Melanzena except juveniles - (a darker day)

June 75 a - *Murex lecanus*, Dall? Taken in net by fishermen at Bridge in causeway on Hwy, between Empalme & Guaymas. Got live specimen

June 75 - ~~Soldota~~ El Cochon, n. on clean sandy beach near Inlet to Lagoon (w. of Empalme).

Beach Shells

Pecten deep.

" flu.

Panicardium elatum

Strombus gracilis

Crep. adunca

Murex bicolor

Crep. vryt

Astrus

Architecton

Jingles ?

Surirella ?

White moon

Pol. reclusia

Cuc. spinosa

" - rugat

Worm tube

Agarion

Live speck

Conus - black

Angel wing

Black Murex

Sm. Spindle

Brown Top shell

Tan "

Heterodont

Ronnet

Calyptra

Arch - small

Fined red clam.

Murex alenensis

Kinky murex?

Dalman Evi

Pink rimmed clam

Yellow " "

Pitar *depressa*

Fringed clam

Erucis

Pink clam

Sm. @ clam

Cerith. albidus

Bubble shell - lge

Grey nautilus

Jan 76

1-21-58

El Cochovi, S.

Clean sandy beach, 50' ± between mean low tide & high tide.

Same generally as Jan 75, north of Pavilion

Alone - *Agarionia*, feeding on *Heterodona* & *Dona*.
burying very regular \bigcirc hole
Polydora rectigemma - also feeding on Wedges
Tivela -
Heterodona
Dona


Jan 77

1/24/77

El Cochovi, N.

South from Pavilion along beach, past lagoon on east of dunes, to where beach becomes 200 yd wide spit. Here storms have washed across spit into *Empelma* lagoon, leaving many shells.

Dead - *Scotobornet*
Pink murex
Turritella
Mshony cones
Frazid clam
Stomatopoda
Polydora rectigemma
Br. Bubbles
Rosy cockle
Yellow "
Pholids.

New species -
brown clam 

Other, same as Jan 75 + 76

1-26-58

Jul 78

Soldado.

On spit S. of Inlet, not a low tide;
and in rocks in splash zone.

Usual dry shells.
Some *Pholads*, etc.

1-29-58

Jul 79.

Soldado.

A At N. end of big lagoon - shell heaps by natives.
Area
Fringed clam

B On sandy beach, from Inlet N. to small lake
(lagoon cut off).

Dead
Strombus
Alive
Cone
Sand dollar

Speckled clam - 4"-6"
Big *Urosalpinx*
Parts of broken gastropods -
Sea pen - *Hydrus*

Alive - From boat at Inlet.
Scotch bonnet
Olive - brown
Juretille & limpet
Area
Strombus granulosus

Jan 80

1-30-58

El Cochon - n.

at low tide (2:00 p.m.) north from Pavilion to near island at end of spit. Time collecting at low tide mark.

On sand flats, ocean side (outer harbor) got live -

Scotch bonnet

Fringed clam: (*Chione quidi*) fine fringed

Alia spicata

Thorny clam - few open

Agaricus

Beach shells, ocean side.

Black mussel

Periwinkle

Thorny

Bubble shell

Top shell

Flame pink periwinkle

Deep pink

Brown cow 2"

striped " 1 1/2"

shiny " 3/4"

Big dark cow (5")

Strawberry quail

Marina - light wh. C

Poly. rocky

Sun-ray clam - 1 or 2

Red - complex

Durvillea

Grep.

Pink periwinkle - sm.

Pink clam

Sm. spindle

Speckled clam 4"

Arca - sm.

Big Red (smooth) 1 or 2

Best collecting yet!

Crab - "Sally Lightfoot"
Hermit in potteria

Jan 81

1-31-58

El Cacho, n.

Same as Jan 80, but further north.

Same specimens -

also large cones.

Fig. beds?

many by *Stromia*

Jan 82

2-1-58

El Cacho n.
To Island

Collected to and at Island -

Crusery now connects spot to Island - 10 in
light, windows of shells. Reminds of Sanibel Is., Florida.

Five *Alia* species?

Sericea bonneti.

Cruz. Cruz

Dec 83

2-2-58

El Cochón - North
Z. Island.

Same area as Dec 82, but around island,
also, in Empalme Lagoon, on beaches.

Alive - *Alvea spicata?*
Scotch bonnet
Crepidula onyx
" *nivea*
Aslisa.

Spring clam 1
Round 2" thin rosy inside
yellow outside. Clam.
Agaricus

Went -

Pecten, several species -
Jingles
flat oyster shell.
Jurella
Pol. recluz.
Strombus grac.
P. rostr. grols.
Purse clam (Zellina?)
Jack knife
Cone

Scotch bonnet.
Knobby gastropod.
Cup & saucer (spinosa)
Murex - spiny.
" - flat -

2/3/58

Dec 84

Same as Dec 82 & 83

N. El Cochón & Island

but more on boulders along shore.



New species -
Cerithid?
Nassarum

See 85-86

2-11-58 & 2-12-58 PM El Cochon - N.

Playa de los Dolores to Isla Morritos

- D. Entire half sandy beach, 4 miles northward.
- A N. of Island has many sm. shells with hermit crabs.
- B S. of " along tide marks, preponderance of Pecten Clams, Strombus, Jingles, etc.
- C Sand bar at pt S. of Playa, 1/4 mi from Island,
 - Oliva sp.
 - Melampus - alive
 - Scrub Bonnet "
 - Fringed clam "
 - Thorny clam (Pils) "

- B At high tide, following "blow" fr N.
 - Sm. white clam  1"
 - Sm cream "  1/2"
 - Anomia (thin jingles)
 - List of am. sea insects

Playa - - -

D. Along beach -

- Lunulilla - Strombus spec.
- Crep. - spawning. Pink mussel

- A - Sm. spindle
- Drill
- Murex retiro - spiny.
- " 3 flanged
- Pecten
- Ostrea mex. & corteg. (alive)

July 87

164

7-13-88

P.M.

San Carlos -

A - Cove near Inlet, to west from it.

B - Cove " " on ocean side

A - Pink mussel - alive

Strombus - knobby

Algae feeding on bary shells lined clams & Proto.

lined clams

Proto.

Note - Got 11 pink mussels fairly clean, in spite of
shell collector preceding - ad museum.

B - Purple limpet - *Purpura patulopansa*
Littorina

Next

Course

Strombus galatin

Actina

July 88

2-14-58. Early P.M. Low tide El Cochovi n.

Along beach north from position - not heavily covered.

But live specimens esp. on wide clean sandy bar, hard packed, at point. (S end. of Playa Rotonda)

These include

Olivos spicata? Uniform size of largest, 2-2 1/2 Scotch bonnets

*

Melongena - a record; large & fine, no injuries or breaks in operculum.

Note

gave it successive (at 1/2 hr interval) bairns, (from cold) of 15 & 20 minutes each before could treat animal loose. Pulled by hand while still hot. Cook complete.

Pink murex come in half that time. Olivos giving trouble - stomach remains. Over cooked?

Beach shells -

- Black Murex
- Eye wh. cone
- Fined cones
- Thin round, rosy inside, clam.
- Trematium elata valve
- Dracina - 2 sp.
- Endura Em
- Planat
- Heterotomax
- Pink Tellinid?
- Bubble - eye dent.
- Angels wing
- Trinella
- Fined narrow clam, sm. Some rayed.
- Sm. creamy clam 0 1/2"
- Test of sea biscuit, sm.
- Rosy cardium
- Pecten

July 89

2-17-58 P.M. early. El Cochovi nos.
Tide only moderately low - half of Point Bar
exposed, & still wet.

North fr. Pavilion to Isla, but not on Isla.
On Playa Holeros, Sand Point bar, & fr there
to Pavilion.

South fr. Pavilion over 1 mile, mostly at
high tide mark.

New specimens - both fr. Playa Holeros.
Cerith - 5" long.
Sm fragile white clam.

Live - Hermit crabs in Pink murex

Diadema Barnacles.

Olive

Scarlet bonnet -

Spring clam.

Dead - as usual -

Bubble shells, large, plentiful

Pink murex

Black "

Spring " - retic.

Rose clams - cockles

Orange "

Yellow " - cards

Pecan

Dumetella

Strombus groe.

Pol. rectus.

Trues

Architect

Just stripe clam - 2 spec.

Spring clams - esp. small

Cones - sm limet

Fringed clam.

Jingles - thin - esp. near Isla

Sm red center clam - to 1 1/2"

Pholads - 2

Porax

Heterodoma

Azaronia

Lined & retic red clam to 1"

July 90

197

2-20-58

P.M.

El Cochoni, S.

No really low-tide.
S. on beach, hard sand, patches of clay esp.
below low-tide.

South nearly to low ridges, several miles.
Beach esp. well shell laden.

Drosicaria, 1" to 8"
Jack knife - 2 species
Sun ray
Triton

Pitar lypsaena
Triton gon.
Cardium - speckled
" - rosy
" - yellow.

Strombus gracilis
Cup & saucer - spring
" " " - ridged

Crepidula, twisted
Coffee bean

Thin white  1 1/2"

" " " ridged, complete

Thin rosy inside, circular.

Ridged yellow or maroon, to 1"

Anomia

Panopeus

Clam
Rock clam

Cones, 2 species

Jasp shell, tan.

Murex - long, spring

Agaronia

Buccina

Archaeolus

Beclia, white

" " day

Lamcardium white

Sm, pink, 1/4"

" " umbon, 1"

Cer. albiventer

Area

Poly. rectus

Calyptra

Winged *Capit.*

Wh. coiled land snail

Cer. muscorum?

Heterodon

Donat

Pholada *

Barnacles - red.

Jan 91
7-22-58
Same as Jan 90

El Cochon S.

Jan 92
7-23-58 1300 - 1650 - has a very low tide
El Cochon - N.

Taken on Playa [unclear], near Isla Morenos, in
shell windbreak from storms, where currents
tie Isla to Playa.

Place located from town side of Isla.

- Mixed species. Also
- First values for deep water
- Gastropod, 2"
- Black Murex
- Thin Murex
- Cross-squid
- " subject
- Pink clam - yellow
- Green - Brown
- Common

Green by Smith's Harry Adams
 Bill from a wife - near cotton mill
 Very Regener's
 No youth + [unclear]
 [unclear] lunch
 with wind & sand.
 women in [unclear] most eat in
 of [unclear] but on bench
 or [unclear] walking
 of [unclear] side

Jul 93

2-27-58

Soldado

Sand as ...

Jul 94

2-27-58

Soldado

at Inlet, at low tide (not) and on lagoon
paralleling beach.

Inlet bars of clean sand & small gravel

Lagoon, clean sand with silt increasing
toward N. end, where it becomes predominant.

Alive - Melanopsis

- Pink murex
- Natica chemnitzii (gray)
- Pol. ubet ubet. (white)
- Cruc. spin.
- Crep. onyx
- Olivia spicosa
- Olivella
- Strombus gus.
- Arca - lje.
- Scotch bonnet.
- Dalman - l

Shells - cone

- Pol. redigim
- Strombus - knoth.
- Rogus - cla.
- Turrelletti
- Wh. dosimim
- Arca.
- Natica.

2-28-58 In 95

Soldado.

Same as In 94 yesterday, but further East as well.

In addition, got *Desm. porcupine* - small mouse size
 & Black murex
 Mahogany clam shells.

At Camp site on Inlet, on rocks
 Rock oysters (Chamae)
 Crux. Spin.

See Weed.

96

3-2-58

El Cockeril - 21

Along barren but smooth beach, north
from Pavilion, to sand point then (S) side
of Isla Muñitos. On Playa Holores.
Good sandy bar exposed, but not too
fruitful.

Alive -

Scorch bonnets, Found & mating? (In same hole)
Some just growing, to add outside lip.

Oliva speciosa

Agaronia

Polinices reclusianus

Crepidula

Alum - like ring, thin shell.

Beach -

Conus - black, slender

" - lines & dots, fat.

" - white

Pol. reclus.

Cerithid - long

Lunetella

Pecten

Pretty pink rayed valve.

3-4-54

Gu 99

El Cochon - n.

Same as 3/2/58 Gu 96 as to beach -
but intervening storm (SE.1) has flattened
& widened beach, and sections were quite well
covered with shells, especially at & near high
tide mark.

Alive -

- Pecten
- Yellow Cardium - small.
- Pitar lupanera
- 3 ringed clam
- Cardium - small red.
- Crep - twisted
- Bastarda - red
- Oliva spicata
- Luridella -
- flat white 2" - 1/2" young
- Luvula

dead - usual

- White nautilus
- Sm creamy 1/2 circular clam
- White dosinia in confusion
- Jingles with both valves.

Crb. creamy - on beach wood waves (at time)

Dec 98
3/5/58

El Cochovi, n.

Same area as Dec 96 & 97, but tide not so low
& beach more bare.

Find that the day after a storm is optimum -
later, shells wash out, or sanded in or broken.

Crab - same as Dec 97,
Blue jelly fish - taken:
Star fish on sand.

Dec 99
3-6-58

El Cochovi, S.

South from Pavilion on clean hard sand
beach, almost to Clay cliffs.

Mostly small shells left after a tough days
battering since storm.

Many operculum of murex, few murex.

Next - Flat clam, very thin - white, somewhat rectangular,
with byssus.
Other thin delicate wh. clam -

Shells - thin Joleicardium
Juretillo 2 sp.
Rosy cockle.
Murex - spiny
" - black.
Trop shell
Wh. Crep.
Naxima

Jan 100

3-10-57

El Cochero S

Not a really low tide - collected storm swept beach.

Hard sand; South of Pavilion to Clay cliff.

Some previous collections here -

Plus "Coral"

Jan 101

3-11-57

El Cochero S

Windy, it is very hot -
Collected a few things - noted for a while

3-13-58 Gu 102

El Cochari, n.

n. fr Pav. to Isla.

3-14-58 Gu 103

El Cochari S

So fr Pav. to clay cliffs.

Jul 104

3-15-58

Fair low tide.

El Cochon, n.

S. fr. Pav. to Playa Dolores & Isla Morita
Few live shells.

Many hermit crabs.

Jul 105

3-~~16~~¹⁷-58

El Cochon, S.

Drove S. about 10 mi on beach to lava point.
Struck in sand overnight thru 2 high tides.

Collected S. on rocky point, sm sand beaches in spots.

Olive - large brown

" - speciosa

Verita

Biseriis

Tops of large turba.

Sm. dosinia - to 1 1/2"

Bubble

Aquaria

3-18-58 Gu 106

El Cochon S.

Off rocky point back toward Pavilion about 1/2 mi
Off soft sandy beach.



11-11-58

Gu 107

Venezuela -
bar


Thais biserialis - nice young. Under & on boulders
Agarionia - present.
Olive - " "
Pyrene - " "

11-12-58

as above. 5⁰⁰ PM

Thais biserialis - on boulders
Agarionia - in sand.
Olive - 2 yr br.
Flat shell various clam " "
Tivela .. not taken
Turritella gonostoma - in sand
Melanogona small
Sm. Area

11-12-58 - Sun 108
3:00 P.M. + El Cochon H. 2 mi
Tide going out. Beach rather clean.

- All dead shells
- Crucibulum spiculum
- "
- Tegula gracilis
- Tan tops
- Arctidesmona
- Crucibulum
- Alina -
- Pecten
- Picture clam
- Sm, Pink umbones 
- Jucula
- Murex - sm, spiny
- Shorny clam. Pilsa
- Red lined clam, some gone over - Pilsa

Have crab - long legs, eye from eyes on stalks -
got between him & splash food, easily caught.

Jul 109

El Cochoni 81
at Playa Dolores?

11-13-58

3³⁰ - 5⁰⁰ P.M. Tide nearly out.

- Olivia pleurata } water edge
- O. brown }
- Agarvinia } inside above
- Natica chermutzki (gray) } nearest shore.
- Colyptra }

- Shells only -
- Pecten
 - Turrit

Jul 110

El Cochoni 5
Nearby to "cliffs"

11-14-58

3⁰⁰ - 5⁰⁰ P.M. Tide ebbing.

Strombus gracilis

Shells only:

- Lucinoida elata
- Colyptra
- Strombus gracilis
- Wedges - small spec
- Turritella - 2 sp.
- Turris byronensis
- Murex rostratus
- " bicolor
- Phol.
- fungus
- Pecten voyden
- " sp.
- Crepidula 2 sp.
- Agarvinia
- Archaeolana

- Conus -
- Dorsalium - dorsum white ⊙
- Crepidula ovata?
- Raised clam.
- Deep clam
- Sm. pink clam ⊙
- Sm. red umbonate clam
- Arca
- Pattern clam, heavy.

+ plentiful.

180

Isu III

El Cochavi, S.

11-15-58

Tide ebbing, late afternoon. Collected at H.J. mouth
& into storm zone. From near "cliff", S. 2 miles
Beyond rd fishing boat wreck.

Same as Isu 10, mostly, but more of them - best
little, if any, collected.

Shells only.

Aster

Calyptra

+ Lingula

Arca - 2

Crepidula - 2 sp.

Royal clam, sm

Pecten Douglasii

Pecten sp

Conus

Cruc. spinosa

Cruc. - ridged

Architectonic

Notica

Luvula laponensis

Rosy long clam - Tallini?

Rosy umbonid, sm, long clam

+ Strombus quadratus

+ Pitar laponensis

Tracy clam

Murex nigritus

.. becolt

Heterodontus

+ Murex

Turritella

Jigzag with heavy clam

+ Macrardium clam

Polysia

Strombus - spiny

.. in murex.

Agarionia

Oliva - brown

Sm. round clam - size dime

Ling. reticulate cla O

181
Dec 112

11-16-58

El Cochon S - or
Cruz Piedras, N.

Preponderance of *Crucibulum* the end of beach.
Also many good *Pates ligandera*.

Dec 113

11-18-58

Cruz Piedras, S.
to Sand Spit -

Dec 114

11-20-58

El Cochon, N. to
Moor Island.

Found 3 large Sand dollars at water edge, near
wrecked fish boat.

Preponderance of *Pecten* this area.

Dec 115

A Bar outside Inlet -

Olive-brown

Agarionia

Gonyostoma - *Cheromitzi*

Strombus gracilis

Arithides -

Venano's

11-21-58

B Sand & silt flats in lagoon.

Gosinia - sm. white

Ridged clam

Rayed clam

Sta 116

Soldado Bay

11-24-58

Low tide about 1500.

Worked outer sand bars, found live -

Oliva - 1/2

Conus - 1 small

- pallida

Alvella

Murex bicolor

" nigritus

Cassis - Scotch bonnet

Turritella Jones.

Arrow sand dollar.

Aporrhais

On bars - some silt - just inside Inlet &

Opposite Camp ground, alive -

Natica - gran - many.

- reclusiana - 1

D. Smith's Clam

San dominica

Heavy clam.

Melampus - small

Aporrhais

Oliva - 1/2

Alvella

Caeriacardium - 1, valve only

Cozy clam - shell only.

Crepidula

Arca - 3, alive

Paget clam "

Sta 117

Soldado

11-24-58

Same as 116, but at Inlet only.

Isu 118

183

11-26-58

El Cochon - N.

Playa Palosa

At low tide, worked big bar at bend at ..

Olive -

Black Murex, large, eating -

Fringed clam

Olives

Agaricaria

Most shells from near Moota Island.

Isu 119

El Cochon, S.

11-28-58

In vicinity of "Cliffs".

X murex most plentiful. All beach shells.

- XX Strombus gracilior
- X Turriculina elata
- XX Tridacna hypnensis
- X Pitar lupanaria
- XX Turritella goudotiana
- X Architectonina
- Cruciatella 2 sp.
- Blk murex
- Periwinkle
- X Pecten & heterodon
- Procinna - 1 sp.
- Cones
- Spongy murex
- XX Ruddy cockle
- Agaricaria
- Olive
- Pecten circ.

- Pholids & Angel wing
- Fuzzy clam
- Crepidula onyx?
- Pecten vogdensi
- Cer. albanodorus
- et al.

Sta 170

Dec 112

Cruz de Piedras, N.

11-30-58

From end of road, n. along heavily eroded beach to vicinity of "Cliffs".
Not much new stuff.

Shells only -

XX *Cruc. spinosa*

X " *ridged*

X *Jugles*

XX *Trochus byson.*

Pecten circ.

Alire - brown

Apatina

Murex - sm.

" - *Pink*

X *Arca*

X *Dorsinia dunkeri*

Crepidula vryx

" - *white*

Circ. clam, 1/2" *orange*

" " 3/4" *white*

Succinea

Purpura (Hircia)

Top shell

Thorny Patis (Lupanaria)

Strombus grac.

Patis - ridged.

Sta 171

12-4-58

El Coabro - n.

Collected mostly at upper tide mark.

Many *Succinea*

Strombus grac.

Pecten vryx

" *circ*

Cruc. spin.

Lupanaria

Trochus

Jugles

etc

SO Shell only

185

Jan 122

12-5-58

Soldado.

Low tide of +0.2, but lagoon drained well.

A - Outer sand bars - outside Inlet
Mussel SO
Thorny Pecten leup.

Knobby stramb	SO
Str. groc.	SO
Pink mussel	SO
Pecten vage	"
Crea. spin	"
" redget	"
Comes reg.	Alia & SO
Thin bivalve	Alia
Crep. omyt?	SO
Sundial	SO

B. Baro just inside Inlet.

Hacha - bad commensal shrimp

...	
Varnish clam	SO
Henry "	" & Alia
Rayed "	"
Mosheria denkeri	
Notica chern.	Alia
Stramb groc. young	"
Melampus - young	"
Redget clams	"
Agaricus	SO & "

12-6-58 Gu 123
 Same as Gu 122

Soldado.

12-7-58 Gu 124

Soldado

Same as Gu 123 + 122, also

In silted sand bar with pools, in mid lagoon.

50. *Poronia*
 50. Razor clam + alive
 50. Ribbed clam + alive
 50. Varnish clam + alive
 Melanops - alive - sm. to med.
 Miter's Chene - large, alive
recluziana - alive, sm.
Pyrene + alive

On dead wood -

area -

Or. star muscum.

Cruc spinosum

12-8-58 Su 125
L-T -1.2

El Cochon, n

A Collected bench, H.T., from Pavilion north to fishing boat wreck;

B. Then collected bar & shore, sand flats with some silt, at end of Playa Holovak.

- B. Block murex
 - Pitar lupaneros
 - Fringid claus
 - Sm. Oliva
 - Laevicardium
 - Agaricus
- } alive.

- A. shells.
- Narrow crepidula
- Crepidula
- Livida
- Psidium
- Strombogramma
- Laevicardium
- Pecten circ
- " vespertina
- Yungia
- Chama

12-9-58 Su 126
Four tide -1.5

El Cochon n:
to Isla Moreta

Same as Su 125, but many Laevicardium alive & backing surface.

Also dead Pinna.
Star fish in sand.
3 clumps size plate, at Island, of Cer. Ster. muscor

Dec 127
El Cochon N. - Isla Morena

12-10-58

Same as 125 & 126, but got N of Island briefly
on sand-salt flats.

Dec 128
12-11-58

Isla Morena
El Cochon N. & S

A - N. of Isla Morena - others got many large
Black murex &
Melanogena

B. On main flats from "Hook" toward Empalme.
Circ. spiriferum on every rock & dead shell.
Ruged Clam
Rosinia - sm.
Sm melanogena.

C. Drive S. of El Cochon to near 'Cliffs'
Spring Pitar (Liponares)
Grouper procelus
Lucia liponensis
Black murex
Rosinia - large

Jan 129

Cruz de Guzman
No. 1000 / E. ...

- 28 - 57

50
A. ...
R. ...
C. ...

50
A. ...
C. ...

Jan 129

12 - 15 - 57

EC Cochran.

On beach, s. to Stump Arroyo.

Beach much changed - sand of lower 43 washed out & replaced by flats & shallow lagoons & tide pools & run off. All fine sand, shallow surface (silt in away).

at low tide (0.5) at near turn, some Pitar lupanaria boring surface.

Murex - shells only

50 Archuletonia

Caecum stalin

Tridacna ...

lined Coeloc

Dec 13

El Cochon S 6

Playa Morra

12-16-59

S. of El Cochon to Isla Morra on sandy flat 1/2 mi S. - little surface with of any tide 0.3.

Black Murex, feeding on Rosinira

Alvea

Natica clausi (young)

Fringed clams

Crepidula on Polynia

50 Stomus gracilis

Pata lupanera

Black Murex 1/2

Dec 13

El Cochon S.

from Arroyo dump

12-26-59

Beach wide, flat, hard sand, with occasional beds clay showing thru. Tide 0.5' from water.

50 - only live shells seen few Turritella.

Stomus gracilis

Turritella gonostoma

Favosarkia elata

Pata lupanera

Crepidula speciosa & others

Crepidula nuxia in bl. murex

" nuxia?"

Black Murex - large

Black Murex

Black ..

Black

Architecton

Black

Conus

Clam

Murex "Turritella"

Dec 132

191

El Cochon - N.

Moore Island

12-27-59

near north beach to Moore Island.
collected mostly on sand flat at point.

Sc Pecten
Cres.

Alive
Glycymeris spicata
Danish clam
Chione gaudes

Dec 133

12-28-59

El Cochon S.

to near cliffs

Wide hard flat beach - tide lagoons (shallow)

At low of tide at dusk, -

Agaricus - 5'

Pilori leucopurpurea - "

Fusinus or Knufostea'

Sc Turritella - 1 alive - not sized, 5 holes.

" gonostoma

Pecten

Cres. 2 species

1000-1000

May 1

12-1-53

Mazatlan
N.

From Mazatlan, north to Gaviota along sandy beach, clean but mostly narrow & steep.

May 2

12-2-53

Mazatlan
N.

Same as May 1.

May 3

12-3-53

Mazatlan
S.W.

South of Causeway from Mazatlan, west to Faroe Island.

of note: live
Males
Cypraea

187

May 4

Mozatlan

12-4-53

North of Saviota (Pavilion) to lagoon
beyond rocky point (several miles, by dirt
road East of fresh water lagoons.

Sand bars, clean, facing ocean.

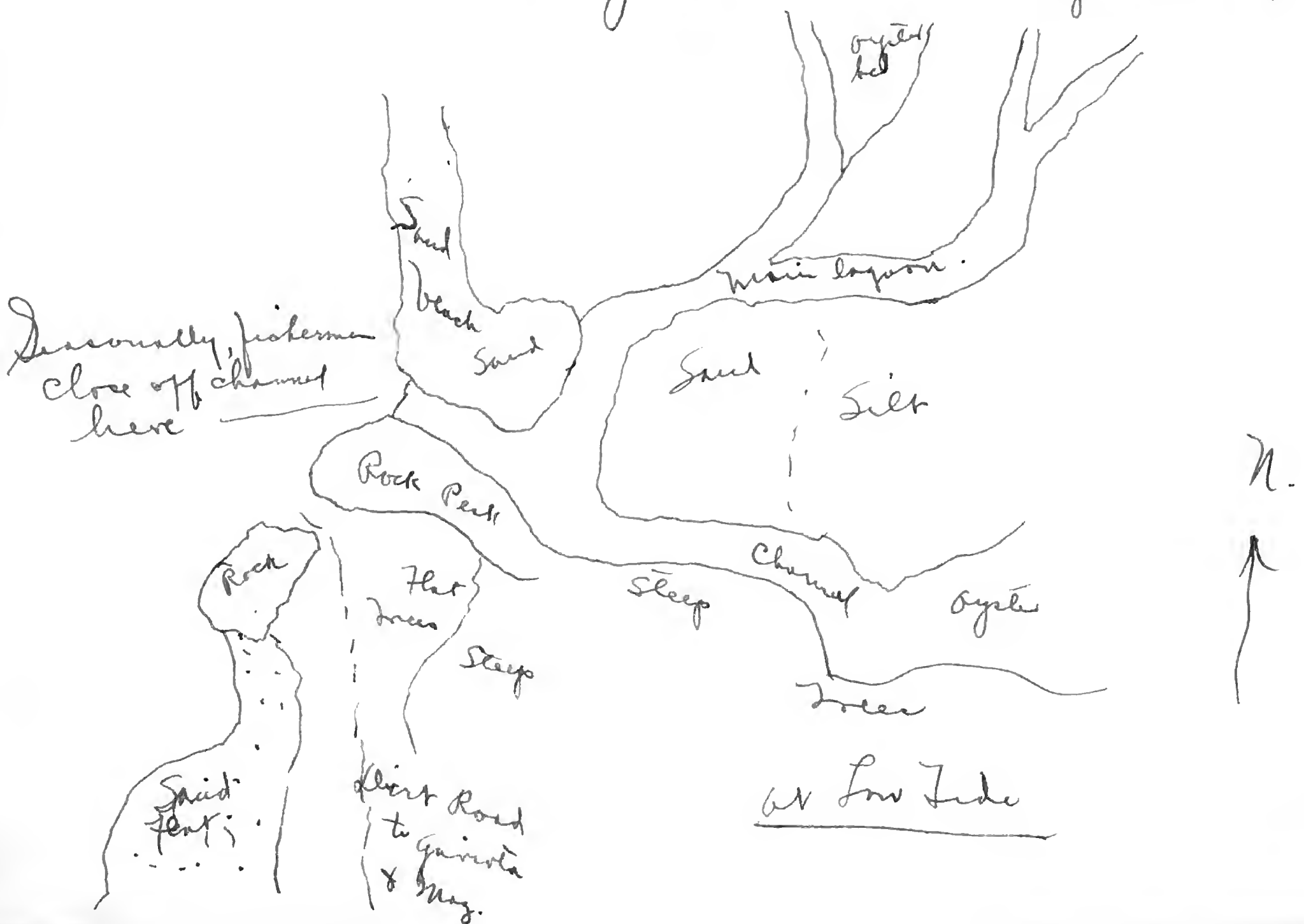
Sand flats, silted, in lagoon.

Oyster beds, spotted.

Rocks outside inlet, open to sea.

May 4 A.

Oyster bed,



May. 5

194

12-5-53

Mazatlan.

At Old Fort, fronting Old Harbor.

Between Yates & Casa Marina (old fort)

Boulders & cobbles, mostly lava, on sand
& gravel strata.

of note -

Conus

Conus

- small, alive.

May. 6

12-10-53

Mazatlan

Same as May 5, mostly east of Old Fort.

May 7 - ~~4-4~~

Also see #18 ✓

12-5 Nov 52

Magellan

Lavaca Beach, from Gaviota townward
on sandy beach, high tide line, to just beyond
Cannon Point. Shale beach, clean sand.

Mitra lens

Gorgonids

About 5 kinds

Conus nut?

Mussels

Pitar

Livella

Pecten - long jaw

" - circularis

Cardium - heavy ridge

" - lt. ridge

Petricola?

Trinia - large

" - small

" - speckled

Astraea mex?

Rock oyster - common

Northia norbica

Cruc. spumosa

Cruc. ridge

Helicodonta

Apert quad, small

Pholad

Corbie

Brown clam

Chione, heavy sculp.

Crab - orange

Crab - white

Big white, one angle clam

Callinectes

Twisted Crab + Scaevola

Burrows, 2 or 3 sp.

Worm tubes, brown, shiny

May 8

Magellan

Alcornoque #7

6 Nov 52

at Comodoro Point, on rocks - found 293
not a mussel bed.

White bottom so very slow fish
Knobby clawed crab
Lantern - small.

Alcornoque - (knobby)
Long black gastropod,
yellow murex,
Knobby, wh. " "

Cornice, immature

Chitons
Limpets or chitons

Turbo
Pyrene
Gastro - black neck
" white " heavy lip
" stubby, 3/4", white, knobby.

Star fish wh. pale - Pinctada?

Limp shell - sm. Glottida?

May 9

Mazatlan, Mexico

8 Nov 54

Collected in small cave just W of Cape "Puerto Angel"
Cobbles to boulders on shaly sand-gravel strata
over bed-rock. Protected from direct ocean waves.
Zones 2 4 3 Between Chile Pt & Tiburón Pt.

Astraea

- Knobby, slow
- Sea fan (gorgonid)
- Star fish like
- Star pencil scrobis
- Crab - mummified
- Crab - flat, red claw
- Neosquilla (in sand, loose)
- Corals, sm., sharp edged
- Corals, sm. yellow & brown - *Cnemidocarpa*
- Pyrene major*
- Pyrene*
- Basket shell
- Rock oysters (chama?)
- Astraea, lge, loose
- Area solid.
- Crepidula* on corals
- Keyhole limpet
- Acanthina* - knobby! yellow murex
- Alata*
- Drop shell?
- Crepidula* large?
- Cassis Coelocassis*
- Pedicular*
- Snake-like Eel
- Hermit Crab, red + black.

- Squirt-tube
- " - leather
- " - round.

May 10

9 Nov 54

Same as 8 Nov 54.

add

Junco-like

Cummins

Pink cloud, sun

Arca

Harpa

Crepidula arca?

Arca

Alca

May 11

Mazatlan.

10 Nov 54

Corral Point - Headland up coast (2.1) from Los Gavilanes, at Inlet to Bay of Reyes, now sandd shunt

A - Rocky points of lava conglomerate, very rough, cut by narrow fissure vents. f. 2-3-4

B - S. of point on flat sandy beach, wide, clean & hard

A - Inverte

Antonin (fuzae)

Comma (terrestrial)

Scyphoids - just at edge of 1 & deeper

20 Ray star fish

Comma - ray-like, flat

Keyhole limpets

Ostraea

Chama (red inside)

Mussel

B. Sm. @ keyhole sand dollars

Alivella - black, black white, etc

Slender white gastropod, with above

Garyea

Donax

Tridacna

Wh. clam, like above

Natica, flat.

a - Gastropod (heavy lip) *Ibaia lemniscata biserialis* - Blainville

" - (stubby)

Pyrene fossata

1/2" gastropod, chry.

May 12

Magatlan

Not 5th

Same as May 11, especially S side of point (A) and sand bar (B)

Live "B" Sharp 3/4 gastropod

Petal - spring

Agarwood

Tridacna

Flouse

Alivella

Crab

Acmaea - (luna)

Acmaea - (Krustly)

Live A

20 Ray star

Red claw crab

Rock crab

Red gorgonids

Yellow

Fucus - yellow

Alivella - black etc - around gorgonids

Acmaea - huge specimens Krustly

Needle like sm. gastropod - Around gorgonids, in same pool

Antonines

Mussels

Pyrene

(B) - Juicy sand crabs (Emerita?)

Keyhole limpets

Limpets

Chama

May 13

Magellan

Nov 52

Collected at

- "A" Camaron Point.
- "B" S. of Pt. Javalos.

- "A" On boulders on bed rock & on sand
- Cornis - eye
 - Cornis - sm. brown.
 - Pyrene - major
 - P. minor!
 - ribbled Tridacna
 - Alatus
 - Crepidula
 - Aurichia

- "B" - "A" on rocks - Mytilus
Pyrene

- "B" Tridacna on sand flat
- Agarionia
 - Doros
 - Alatus
 - Pitar - thorny
 - Flat Tridacna?

Crab

May 14

Dec. 1955

Sand beach, Gaviota Beach - north from
Camarone Point. much sand washed in,
beach now fairly steep. To North Point.

50.

- Astrea iridescens
- Donut - or Heterodonut
- Pholad
- Trinia - large
- Pitar lupanaria
- Cone - small
- Trinia? Rayed
- Calliostoma
- Cardium - many rayed.
- Cone - Cerithium - Port.
- Jingle
- Cruc. spin.
- Bivalve - red.
- Cruc. radiata?
- Nyctin
- Polinia - flat.
- Pink umbona clam - sharp pt.
- Tridacna?
- Nerita - no teeth.


Alive

- Donut
- T. biserialis
- Keyhole limpet - large
- Fittorone zigzag - small.

May 15

Dec. 8 1955

Camaro Point - on rocks -

- Cyrene
- Thais patula -
- 1 biserialis
- Keyhole limpet
- 1 single long spine
- Anachis
- Marquiesia
- Mytilus
- Arca 
- Crepidula
- Solenostoma pallida ?
- Clam - colored -
- Heterostoma
- Olisella undulata.
- Many clawed crab
- Small crab - soft shelled.

- 50. Calliostoma
- "
- " 1 biserialis
- Jackknife
- Carbuncle - spiny
- Orbit or Heterostoma
- Trochus
- Cornu
- Istru
- Pitar hypocausta

May 16

204

12-30-55

Near Marine Hwy, E of old fort - gravel, boulders
& solid rock.

Very low-tide.

Cornice

Cornice - sm. flat.

Crepidula on Cornice & smooth Pyrene

" onyx?

Top shell

Cumings - lamp shell ☉

Astraea

Tham. buccinalis

" - yellow

Bastard shell?

Keyhole limpets

Ancalis

Margarites?

Pyrene major

" - smooth

Speckled cerith?

Large Turin

Arca ~~gemma~~ solida

Aletes

Star fish

" "

" "

Gorgonid - red

May 19

at Inlet to lagoon. 12/23/58

Rock, n- of La Grande

A. on outer bar.

Heterodonta alii
Oyster (young) shells.

B. On rocks.

Cancer

potter's paws } both species noted.
Doris vicinialis }
Keyhole limpet
Chelons
30 Ray star fish.
Mussels

C. Bar in lagoon. Clean sand.

Jack knif clams, shells only.

No marks by crawlers or burrows.

May 18

Faroe Island.

12/27/58

- A - on rocky point, outside of jetty.
- B - Good near old fort, on rocks.

A
 Limpets, blue
 " Keyhole
 Flat shells.
 Thin bivalves
 30 Ray stars.
 Knobby star, small. 'B', not A

B.
 Cowrie - small.
 Thin
 Pyrosoma
 Protobryozoa - s.d.

May 19

Faroe Island

1.

Same as above.
 Also Crabs

207

May 20

1 - - 59

Govaldo

On rocks n. of rocky point. Lava, esp. conglomerate. Med. low tide. Mostly collected in Barnick area, above red coralline.

Limpets

Chitons - 1

This patella pumila. Keep in separate containers, drain off sea water & strain several times.

One white gastropod, found with - biserialis.
Bivalves.

30 Ray stars.

MacFadden 21

208

Cove.

Fri. P.M. 2:30 - 4:00

1-9-59

Low tide, good. Sea not bothersome.

On boulders & cobbles on gravel bed, in small cove.

Collected best out where red Coralline began to cover rocks & cement together.

Algae:

Pyrene +

Black Murex - 1

Flared " - 2

Thais - large, flat spine -

Yellow mouth Thais.

- pallida??

Spotted Trivia

Trivia - 3, under rocks in water. Swimming slowly.

Crepidula - flat white

Hard shell.

Chama.

50.

Proto. duncan S.O.

Area Solida

Sponge? white, with crater.

Crab.

Star fish - 4 species, 5 rays.

Urosalpinx - 1 scrubby.

Note - In gal. jar, most shells partly cleaned - but Cowries intact.

May 22

1-10-59

Marine Cove.

Same as May 21, but included rocks & pools toward Marine Hdq.

Alive - *Conus* mix - lge spec

Flat *Crepidula*

Ostracod & shiny

Thais *bassini*

" - flat spine

Cassis *caerulata*

Arca *solida*

50 *Juridella* - stubby

Thais - white mouth

100% shell

Pyrene.

Chama.

Luna - 1

Conus - young *cerulea*

" adult & half grown "*Mahogani*"

Flat clam solidly on rock bottom, like "pearl oyster" but small.

Worn shell.

Keyhole limpet.

Starfish

Nidarella 3

5 arms, 4 knots

Gorgonia

Sm. green "anemones"?

Note - See May 21

Since Blue

San Blas
S.B. 1

210

12-7-53

San Blas

On pure sandy beach, open to sea, at
resort area beyond town.
At moderately low tide.

S.B. 2

San Blas

12-8-53

By boat across Inlet to lagoon, to
Coast & rocky point on which stands lighthouse
(Faroe)

A Rocky Point, boulders large & rounded,
sanded in.

B Clean sandy beach both sides of Point.

C Sand bars, heavily silted, north bank
of Inlet & lagoon.

Collected north to mud bars.

Note - *Triumphis subrostrata* - woods.

San Blas 3

23 Nov 1954

At Matauchen; by road, dirt, turning S, several miles out of San Blas, 2 hrs away 3 Km (2 mi) to Bay of Matauchen.

Sandy cove along north arm about, mile from resort buildings. Clean flat beach, but sand. At mid tide, rocks on shore between cove & Matauchen. On them, some growth mostly oyster, chous, nerita, & crabs

- Sand bar. Cerithium - knobby
- Pata (long spines, light, fat)
- Pata (short " ; brown, slender)
- Big white clam - 4" x 6"
- Sm " " - similar - fuzzy end
- Agaricus
- Russel
- Yellow Cerithium
- Tellina (pink)
- Tivola
- Brown clam - sm., ridged
- Cerithium - sharp.

- Among rocks -
- Turritella shell only
- Prototheca - large s.o
- Black Nucula - very black

New - sm. pink clam, fat, long.

San Blas #

W Nov. 54

Matanchen Bay.

On flat sandy (clean) beach from Resort S. to rocks 3 miles

Collected -

Pitar - long sp

Agaricus

Alona

Livella - jar

Livella - clean, light

Wh. polynesian & hermit crab

Arca

Olivella - Bl & Blk + white

Pecten - flat valves only

Tellina - pink valves

Arca

Heterodonax



San Blas 5

213

25 Nov 54

Montanera, out (S) of San Blas.

Some sandy cove beach, hard clean sand,
as collected San Blas 3. Idem ground covered.

Algae -

Large white angular clean *Thalassia* - grey

Trichia -

Pilayella? - green

Pilayella, thorns long

Pilayella, thorns long.

Porosira

Agardhiopsis

Alveolaria brown?

Sea (3/4") @ white clean

Pink clean - like *Jellium*

Yellow gastropod, stubby, yellow.

Dictyonema, *Cerithium*

Cerithium (awl-like)

Arborea

Northia *Northia* - live!

Protolothos - superior; "

Grey *polinices*

San Blas 6

210

26 Nov 54

Motanchen, S.
Same broad flat sandy beach as SB 4,
but mostly further S. & a lower tide.
Rocks at S end where beach road begins
inland around mt, rather barren except from
Solerostrina

On beach -

Polynices - flat brown.

Trionyx, *trionyx*.

Agarionna

Alivella

Polynices - grey (notice)

Trionyx - color variations & rays.

Pitar - long spines

Pink *Tellina*?

Ear shell

Arca

Wh. angular 3" clam

SE.

Pecten valves

Cardium.

Mytilus

Sand crab - *Emerita*.

White clam, flat end,

12-13-55

Matauchen - west toward Camaron Point, to Cove; from resorts.

Flora sandy bar, quite clean. Protected.
Alive

Ear shell

Big white clam, angular.

Piles - leucoparva

Piles roseus

Urosaurus - eye, heavy wh. lip.

Arithidia - white spots

Tellina - pink

" - white

Yellow gastropod -

Brown "

Agaricus

Natica chemnitzii

Olivella sudatella

Solenostoma pallida

The brown clam

Fucila

Sharp pointed "Donut"

Sand starfish

Brown sand dollars, large, circular

Sea mouse - spiny sea biscuit

50.

Helicodonta?

Pecten

Asper

etc.

Sau Blas 8

212

12. 28-58-

Matauchen Beach - South. Tide half in.
Flat sandy beach, quite clean.

Sea Snake alive - near upper tide limit
high tide. Rather helpless out of water. Larger
than one Squires gave me at Magellan
but seems same species.

Also

Round -

long, slender.

10 -

lined.


Melangean -

Do Becken.

Sau Blas 9

12-26-55

Matauchen - west & n from resorts
to cove - sandy flat.
Same as 5/3/7

- Norchi norchi?
- Rossarius - eye -
- Donax
- Tridacna
- oche brown narrow clam
- Red Tellina
- Pellecost chione
- Agarionia
- Yellow gastropod, scarce
- White angular clam
- Don .. (C)
- Ear shells
- Black mussel
- Pitar hypansera
- Clam - 

Wh. cupidula in black mussel

50

- Cardita
- Pitar roseus
- Pecten
- Worm shell.

Star Fish - red bottom.

Sea Mouse.

San Blas 10

219

12-26-55

Moluccan

5. from resorts mostly in rock
towards fishing village Santa Cruz.

Protocrea?

Thais haemata

" " basensis

Pirene

Arca

Top shell - not undora. Color as umbilica

Chama - bright color

- pallida

Crepidula

Top shells

Margarita

Top shell - sm. @ brown, faint

50

Ostrea iridescens (iridescens)

Chama

Top shell

Cardita

Protocrea

San Blas II

219

12-27-50

Matauchen - S. to cliffs - worked
rocks to Fishing Village.
Boulders & sand.

Wavy top -
Chama
Protochoca
Crepidula

Cuminga - lamp shell 

X pallida
Cardita

Sea tortoise in shallow water - not well.

Look barnacles, let it go.

50 Ostrea virescens
Cup & saucer
Keystone limps
Chama
Trog shells.

220

SB 12

1-17-59

Matauckan

On rocks, coated with silt, on n. side
bay, from end sandy beach, 1/2 way along
n. side toward ocean.

50 Oysters, shiny

50 Chama

Black murex, 109, clean, nice spires, very
spiny & black.

SB 13

1-18-59

Matauckan

A Same as above (on way back from bar) but whole
length of rocky shore.

B. Sand bar, new, across from pavilion.

A. Chama.

Black murex - 88

B. In. @ clam. Pinkish.

H. Chemnitzzi

P. gene.

My - Munggen

My 1

221

Dec. 17, 1955
" 18

Manzanilla (30-100')

On broad sandy beach, with alternate bands yellow & black sands; clean cobbles above high tide mark; at low tide a rather abrupt drop off. Semi protected bay (from N. & S.).

Olivella

sub-gastropod

flourish - small.

Sm. mottled clam.

Sand dollar, thin, green.

May 2

12-18-55

Beyond sandy beach (Santiago Bay) on n. side
around to lake & stream and cobbles to boulders.

In zone 1 & 2 - not a good low tide,
possibly 0.0' to -0.2'

Limpets	- blue	- med.	3	1 & 2
"	- white	"	"	"
"	- reddish	"	"	"
"	- red	"	"	2

Verita - no teeth

Littorines - 3 - 1

Nyctelus - 3 - 2 Bed on bottom - also on rock bottom

Cerithium -

Crep. nivalis in dead murex

Thais biserialis

Arca - med.

Margarita

Pyrene - sm

P. nigra

Anachis

SD.

Croc. spiradula

Long, white

Foot snail, long.

Wh. corals.

Astraea

Conus

Msy 3

12-20-55
12-19-55

Mansanilla - around S. & W. end of town. Dirt road from end of St. past market, around lagoon to Oceano coves.
Heavy rollers, rocky points making sm. coves.

Q 1, some upper Q 2
(Mytilus in lagoon)

Littorines

Merita - touched

Xenophora - 1 alive,

{ Xenophora?

50. Cup & saucer, looks outside, like Galrasa. Brown center
Mytilus

50 Found snail-lined.

" " - snout, white

May 4

12-22-55

Manzanilla - Santiago Bay, on north side -
followed sand beach west, past cobblestone beach
& boulders, around cliff to abrupt shore, solid rock
with gravel - cobble - boulders & large offshore rocks.

Bayard (W) May 2
of 1, 2, possibly upper 3.

Moles - marked across shore.

Cone - purple

Thais pulchra *paucis*

T. biserialis

sericea - yellow teeth.

Astraea -

Chama -

Patella mexicana - on flat tops of rocks, were washing over.

Cypraea - brown, orange lips. Rare.

SE *Conus* mud

Trypaena - brood shell

Pedicular

Sea urchin tests

Cypraea - flat, small, common lips.


Coral

Cerithium - large.

My 5

12-23-55

Same as My 4, & further out (W) to cliff
On rocks & in cobbles.

- Thais galatagosa - extra large. Breeding
- 50 Cerithium - eye -
- 50 Crepidula - thin shelled
- Conus - dark - purple edge.
- " - dark lines on orange
- " - pl. white
- 20 " null -
- 50 Cardita
- 50 Anasax - ribbed.
- 50 Cassis coarctata
- 50 Tree snails
- Keyhole limpets
- 50 Wedgie - sm.
- 50 Flat spired Thais
- 50 Pyrene major
- 50 Coral - 2 kinds
- Asteria
- 50 Leucozonia
- 50 Cassis
- 50 Long worm gastropod
- 50 Patella mexicana
- Cypraea - flat bottom, sm.
- " - orange ends.
- Anachis - eye.
- 50 Sm. @ wh. clam
- 50 Keyhole limpet -  - Irregular, new.

Algae





Notiscia chemnitzii



Melanogena



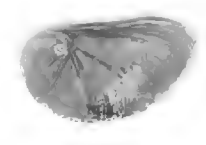
pallida



Polinices reclusiana



P. ruber



P. ruber



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THE SCIENCE MUSEUM

THE ALEXANDER F. MORRISON PLANETARIUM

THE STEINHART AQUARIUM

November 17, 1957

Colonel Lee O. Miles
P. O. Box 180
Bodega Bay, California

Dear Colonel Miles:

On September 15, 1955, we received from you five fishes "taken south of Cordell Banks -- 90 fathoms by dragboat 'Faymar,' Capt. Max Carlson, skipper -- June 5, 1955," as follows:

1. Raja binoculata Girard (called "big skate"): young male, 168 mm in total length, with a conspicuous orange ocellus, sharply outlined with black, at the base of each pectoral fin.

2. Nemichthys scolopaceus Richardson (called "snipe-eel"): adult, 1,588 mm in total length. This fish has long, slender jaws like the beak of a snipe, and a very long, threadlike tail. It is also remarkable in being darker on the belly than on the back. In Clemens & Wilby's book entitled "Fishes of the Pacific Coast of Canada," those authors stated of this fish, "Length to 2 feet 7 1/2 inches." Your specimen, however, is 5 feet 2 1/2 inches long. The scientific name of this species has been a matter of controversy, and we have hesitated to write to you about your fish until we could decide what name to apply to it. We have now concluded that we should follow the French ichthyologists Roule and Bertin in using the scientific name given above. This species is of cosmopolitan distribution and has been recorded from the Atlantic, Pacific, and Indian Oceans and from the Mediterranean Sea. It has been said that it does not seem to occur south of the Equator. This is the only specimen of this species that we have in our scientific collections, and, so far as I know, it is the second specimen ever taken in California.

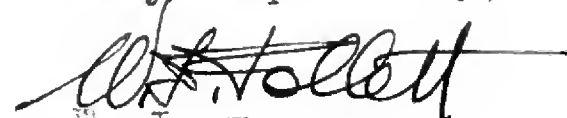
3. Leptocottus armatus armatus Girard (called "staghorn sculpin"): small adult, 122 mm in standard length.

4. Stellerina xyosternus (Jordan and Gilbert), called "pricklebreast poacher": small adult, 76 mm in standard length. This little fish has eight rows of sharp spines extending lengthwise on the body. Most of the fins are blackish. We have only a few specimens of this species in our collections.

5. Anarrhichthys ocellatus Ayres (called "wolf-eel"): halfgrown example, 526 mm in total length. This fish derives its vernacular name from its tremendous dentition, which it uses for crushing the sea-urchins and sand-dollars on which it feeds.

We are indeed grateful to you for this fine collection -- and most especially for the snipe-eel. As we are attempting to build up a complete representation of the fishes of California, this contribution is of particular importance to us.

Very respectfully,


W. I. Follett
Curator of Fishes

WIF/LD